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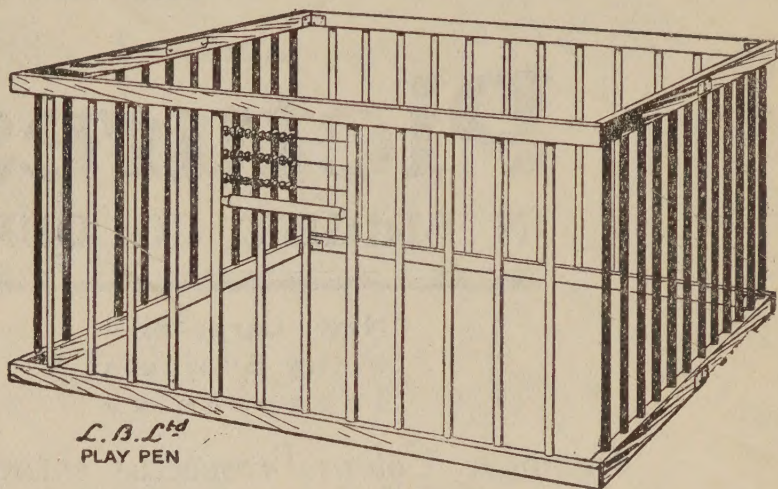
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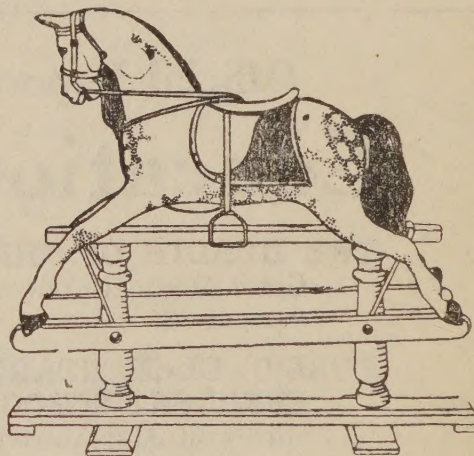
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Report of
The Consultative Committee
on
**INFANT AND NURSERY
SCHOOLS**

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NOTE

The estimated gross cost of the preparation of the appended Report (including the expenses of the Witnesses and Members of the Committee) is £1,427 0s. 0d., of which £345 0s. 0d. represents the gross cost of printing and publishing this Report.

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TERMS OF REFERENCE

To consider and report on the training and teaching of children attending nursery schools and infants' departments of public elementary schools, and the further development of such educational provision for children up to the age of 7+.

ANALYSIS OF THE CONSULTATIVE COMMITTEE'S REPORT

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PREFACE

The following question was referred to us by the Board of Education :—" To consider and report on the training and teaching of children attending nursery schools and infants' departments of public elementary schools, and the further development of such educational provision for children up to the age of 7 +".

We began our consideration of this problem in February, 1931, immediately after we had completed our Report on *The Primary School*. The Full Committee has sat on 32 days between February, 1931, and July, 1933, and has examined 89 witnesses (see Appendix I.A).

In March, 1932, the Committee appointed a Drafting Sub-Committee, consisting of four of its members, with Mr. W. A. Brockington as Chairman and Mr. R. F. Young as Secretary, with power, subject to the approval of the President of the Board of Education, to co-opt members from outside (¹). In this way it was fortunate enough to secure the services of Professor R. H. Tawney, who placed at its disposal his wide knowledge and sound judgment, and who has rendered valuable help in the preparation of the Report. The Drafting Sub-Committee met on 26 occasions between March, 1932 and July, 1933.

We take this opportunity of thanking our witnesses for the valuable evidence which they put before us, and also all those other organisations and persons (whose names will be found in Appendix I) who were kind enough to furnish us with memoranda, specimens of work and apparatus, statistics, illustrations, and other data bearing on our inquiry. We desire to thank Professor H. A. Harris and Professor Cyril Burt, and Dr. Susan Isaacs, who, in addition to giving oral evidence, furnished us with valuable memoranda on the physical and mental development of children up to the age of seven, which are to a great extent summarised in Chapters II and III, and part of which are printed as Appendices II and III, respectively, to this Report.

(¹) Under Clause 5 (iii) of the Order in Council of 22nd July, 1920, reconstituting the Consultative Committee.

We also desire to thank Mr. C. Birchenough, Chief Inspector under the Kent Education Committee, and Dr. Robert R. Rusk, Principal Lecturer on Education to the Glasgow Provincial Committee for the Training of Teachers, and Director of the Scottish Council for Research in Education, to whom we are indebted for help given in the preparation of the first part of Chapter I.

We would express our cordial gratitude to our Secretary, Mr. R. F. Young, and to the Clerk to the Committee, Mr. R. J. Telling, whose services to the Committee have been invaluable. To Mr. Young we are specially indebted, not only for the compilation of evidence on which our Report is based, but in large measure for the form in which it is expressed.

INTRODUCTION

The present Report completes a trilogy which we began with our report on *The Education of the Adolescent* (1926) and, reversing the chronological sequence, continued in our report on *The Primary School* (1931). We have throughout visualised the education of the boy or girl as a continuous process, but we have conceived it as developing through two successive periods. To these we have given the names "primary" and "secondary," although in the secondary period the education of 80 per cent. of the school population continues to be administered under a school Code which by tradition is still described as "public elementary". In order to ensure that each period should be clearly conceived as a unitary phase, with its own problems and its own special opportunities, we have recommended that there should be two broad categories of school, primary and post-primary, the latter containing schools of several different types, so as to "provide a range of educational opportunity sufficiently wide to appeal to varying interests and cultivate powers which differ widely, both in kind and in degree." ⁽¹⁾ The curriculum of one of these types, the Modern School, to which boys and girls not admitted to grammar schools or technical day schools were to proceed at the age of eleven *plus*, formed the main subject of our first report. The terms of our later reference, namely, "the courses of study suitable for children up to the age of eleven", excluded those who were educated in infant schools and departments. Accordingly, our second report dealt mainly with the special problems and opportunities of self-contained schools attended by children between the ages of seven and eleven. There we confirmed the general practice of establishing in the primary period of education, wherever possible, separate departments or schools for children under the age of seven. With such children our present reference is concerned. The text of it is as follows :—

"To consider and report on the training and teaching of children attending nursery schools and infants' departments of public elementary schools, and the further development of such educational provision for children up to the age of 7+."

⁽¹⁾ *The Education of the Adolescent* (1926), p. 79. See also the evidence of witnesses quoted on pp. 72, 73 of the same Report.

It has been the custom, for official purposes, to describe children below the age of seven as "infants", though this term would be more strictly applicable to children below the age of five, who have for long been taught in "baby" classes. In recent years (i.e., since 1919) some provision has been made for them in nursery schools, outside the infant school system, or by means of nursery classes within the infant school itself.⁽¹⁾

When Matthew Arnold, eighty years ago, remarked upon the many good schools which were "clogged and impeded in their operations" by large numbers of children under eight years of age at the bottom of them, he had in mind the provision of separate schools for infants which had already gained a measure of popular regard. By the year 1870, the educational value of these schools was generally recognised, and the adoption, in the Education Act of that year, of the age of five as the age of entry established them as an integral part of the national system of public elementary education. In the process of filling up the bare spaces, the new school boards treated schools for infants with the same respect as they gave to those for older children. Thus, the publicly provided infant school came into being as a peculiarly British institution. In most other countries it does not form a part of the State system of education, the age for obligatory attendance being fixed at six, or even seven.

Since the year 1919,⁽²⁾ school attendance bye-laws may provide that parents shall not be required to send their children to school below the age of six; but, before an authority is thus relieved of the obligation of making general provision for the education of infants from the age of five, the Board of Education "shall have regard to the adequacy of the provision of Nursery Schools for the area to which the bye-law relates".⁽³⁾ In 1920, the Board, when advising authorities as to the procedure to be adopted in the framing of bye-laws, made the following statement:—"The Board are not aware that at the present time there is any area in which there is so adequate a provision of Nursery Schools as to justify the approval of such a bye-law". Accordingly, in the model bye-laws then

(1) The term "nursery class" is sometimes used as synonymous with "baby class." We consider that it should have a particular connotation (see § 78).

(2) The "appointed day" for Section 8 (4) of the Education Act, 1918, was 1st August, 1919 (see Board of Education Circular 1118, 2nd July, 1919).

(3) Education Act, 1918, Section 8 (4), re-enacted in Education Act, 1921, Sections 46 (4) (c), and 48 (4).

issued, they did not include one for this purpose.⁽¹⁾ Four years later, the Board, while still not including a model bye-law, repeated their assurance that they would be "prepared to consider applications for the purpose on their merits".⁽²⁾ We are of opinion that the sections of the Education Act to which we have referred are founded upon a liberal conception of the practical needs of education in the infant and nursery stages; and, after examining the question from many points of view, we find no good reason for recommending any modification of the existing law.

Attendance at public elementary schools below the age of five has throughout been voluntary; but in many districts home conditions and the wishes of parents have made it desirable to provide for children after the age of three. The numbers have varied considerably. The attendance curve of children between three and five years of age reached its highest point in the first year of the present century. During the previous thirty years, i.e. from 1870 to 1900, it had risen steadily from 24 per cent. to 43 per cent. of these age-groups. During the next decade, 1900 to 1910, it fell to about 23 per cent.; ⁽³⁾ by 1920 it had fallen to 15 per cent.; by 1930, to rather more than 13 per cent. In the rural parts of England and Wales there are only 20,000 children at school below the age of five, and large numbers of these have been entered, as also in some urban areas, under administrative arrangements for terminal admissions, at the beginning of the term (more rarely of the year) in which they will reach the age for compulsory attendance.

The number of children that can be accommodated in nursery schools, outside the infant school system, from the age of two onwards, is small. On 31st March, 1932, the total number of nursery schools recognised by the Board of Education was 55, 30 being conducted by local authorities, and 25 by voluntary bodies. Accommodation for 3,221 children between two and five years of age was found in the provided, and for 1,299 in the voluntary nursery schools. The average number of children on the registers of the 55 nursery schools during the school year 1931-32 was 3,768.

In view of what we now know of the importance of the early years of life, these figures have a grave significance for us. In Chapters II and III, we show that not only may inadequate care during this critical period leave behind

⁽¹⁾ Board of Education Circular 1180 (12th October, 1920).

⁽²⁾ Board of Education Circular 1332 (18th June, 1924).

⁽³⁾ See Chapter I, p. 29.

permanent defects in physical growth, but that what is true of physical growth is too often true also of nervous and mental development. On the other hand, the figures in themselves give no adequate indication of the extent to which the physical and mental health of children, their social behaviour, and their home life have been influenced. Otherwise, we should feel that the labours of a devoted body of workers—teachers, doctors, nurses, and scientific investigators—had been largely lost to the community. But such is not the case. The evolution of the nursery school (and of the nursery class) has led to a re-valuation of methods of training and teaching, which has taught broad lessons throughout the infant stage of education, and has been carried into the homes of the children. In the environment of the nursery school, some of the most valuable discoveries in infant education assume greater definiteness and precision. Teaching in the nursery stage, though it is primarily derived from the experience of the infant school, has thus become a new form of specialism, to the development of which home training as well as school training, medical research and psychological investigation have all contributed. In its turn, it may render a useful service in the place of its origin, if only in removing any vestiges of an unduly bookish and academic tradition which may still haunt the infant school. For this reason, we desire to see the nursery school developing separately, fulfilling its own particular purposes, and perfecting its own methods.

In our Report on *The Primary School* we considered at some length the upper age-limit for the infant school or department, as well as the safeguards which should be adopted to ensure that there shall be no discontinuity in the training and teaching of the child at the age of transfer. We assume the existence of these necessary safeguards in re-affirming our opinion that the full benefits of separate schools or departments for infants may be secured, when the children are retained in them to an age not later than between seven and eight.

In the following pages, we have had occasion to refer to those liberal ideas on the training of young children which were present to the minds of the founders of the infant school in England—ideas mainly derived, either directly or indirectly, from Pestalozzi and Robert Owen. These ideas were destined to suffer a partial and at times even a total eclipse. Though it would not be true to say that the nature of the teacher was entirely subdued to what it worked in, yet the harsh environment of “three-decker” buildings in crowded city streets,

the physical restraint of serried rows of desks on infant galleries, the burden of large classes, the lack of fresh air and sunshine and of opportunities for any kind of free activity, made it very hard to achieve that natural unfolding of the child's interests and capacities which is the ideal of the good infant school. Nor can it be said that these physical impediments are entirely things of the past; but we gladly recognise that there has been some progress towards a better order. Buildings of "open-air" design, garden playgrounds, facilities for rest and sleep, light tables and chairs in place of desks, better books and pictures, and a variety of teaching material, have contributed to a release of power on the part of the teachers. We believe, therefore, that the re-statement of some of the well recognised principles underlying the training and teaching of young children, which we have made in Chapter VI of our report, will be found to possess a practical and not merely an idealistic value. It is no new doctrine; Wordsworth voiced it when he wrote

"Delight and liberty, the simple creed
Of childhood, whether busy or at rest,"

Essentially, as we have said, these principles were present to the minds of the founders of the infant school, though they have been further developed by workers and thinkers since. Nowhere is there to be found a more adequate summary of them than in a Circular which was issued by the Education Department to H.M. Inspectors more than forty years ago. But general effect has not been given to them, and full effect can never be given to them, until the staffing of schools and the planning of school buildings have proceeded further along the lines of progressive development which we have indicated in Chapters VII and VIII.

In the present report, we have not only collected a large body of evidence, oral and written, from teachers and administrators, but we have also tried to ascertain the latest views of scientists regarding the physical and mental development of children during the infant stage. We attach particular importance to the evidence which we have received from Prof. H. A. Harris, Prof. Cyril Burt, and Dr. Susan Isaacs. We have given a general account of it in Chapters II and III, and we have printed as Appendices some portions of the original memoranda, in which certain physiological and psychological aspects of the matter are more fully set forth. We would direct the attention of teachers and administrators to these chapters and appendices: methods and systems of training

and teaching, whether they have a philosophical or a scientific basis, should be re-valued in the light of such specialised knowledge. For the teacher, especially, this scientific groundwork will confirm conclusions which she has deduced from daily association with her pupils, and will serve to correct some misconceptions she may have formed of the ways of childhood.

Against this background of scientific knowledge we have drawn, in Chapters IV and V, a picture of the internal economy of the infant school (including the nursery school and class); and in Chapter VI, we have dealt with the training and teaching in such schools. This latter chapter is necessarily different in framework and content from the corresponding chapters in our previous reports. The child has not yet reached that stage in which intellectual discipline has to be maintained by making the various branches of knowledge the subject of special study. In the infant school, there are activities, interests, experiences, and experiments, but no "subjects". Nor must it be forgotten that these interests and activities can develop only in so far as the physical well-being of the child is carefully safeguarded against the dangers by which too often it is threatened. Mind and body are not two separate entities; they are different aspects of a single personality, and the condition of cultivating the former is to pay a jealous regard to the needs of the latter.

Any realistic view of education must consider the infant school not as a place of instruction, but as an instructive environment in which the child, under the sympathetic care of his teacher, may cultivate his own garden. Of the infant stage more than of any later stage of education it is thus particularly true that "the curriculum is to be thought of in terms of activity and experience rather than of knowledge to be acquired and facts to be stored". The seemingly unordered ways of childhood, "mere wondering and staring at things", are in fact at an early period associated with efforts at rationalising, and these bring about gradually an order and a system; but, in the beginning, the training will be through the senses based on children's play.

" 'tis a delight to look on him in tireless play
attentively occupied with a world of wonders,
so rich in toys and playthings that naked Nature
wer enough without the marvellous inventory of man."

This has been recognised always by those who have closely observed the ways of the child. If the beginnings of knowledge

are on "the voluntary footing of sport", the interests and occupations of adult life may be imitated without any sense of labour—"his game is our earnest, and his drummes, rattles and hobby-horses, but the emblems, and mocking of mans businesse".

There is, however, always the danger that the liberal ideas underlying this conception of the infant school may be followed in the letter rather than in the spirit. The methods of Froebel, for example, were at first adopted in our infant schools in a mechanical and rigid form associated with "gifts" and set exercises based on them. Later, the humanism of Froebel was better understood, and the spirit of his teaching found freer scope. The following-out of the letter of the doctrine rather than its spirit results merely in adding new "subjects" to the time-table: the intellectual character of the "gifts" of Froebel is disregarded, and the children's "occupations" take their place beside the 3 Rs "as mere toys or amusing pastimes". It is only when the child is fully recognised as an individual and not as a member of a class, that there can be a perfect understanding of Froebelian principles. The adoption of individual and group methods in place of mass instruction has made possible the development of these principles, as well as the development of that special type or modification of the Froebelian practice which has grown up in Italy and elsewhere under the influence and practical example of Mme. Montessori. The differences between these two educational influences, and the contributions of each of them to existing systems of child-training, are discussed in our report. To Mme. Montessori we are under a special obligation for her personal attendance at one of our sessions, when she explained her method of child-training, and demonstrated, with the aid of her assistants, the use of her educational apparatus. We have touched also upon the researches of the eminent American scholars, Prof. Dewey and Dr. Gesell, to the latter of whom we are much indebted for his personal evidence. In the sections on nursery schools, we have made particular reference to the teaching and practical achievement of that great exemplar of nursery education in England, Margaret McMillan.

We have felt that we could not overstate the importance of that phase of school activity, both in the nursery stage and later, which involves co-operation with the doctor and the school nurse. One particular aspect of it is the opportunity for detecting early signs of retardation in children. As regards

remedial measures, it has apparently been found undesirable to segregate the pupils at this stage in special classes, unless it be to secure for retarded children open-air conditions which are not available for all the children. We trust that such special precautions may shortly cease to be necessary.

To these and many other aspects of infant training from the earliest years we have made allusion in Chapter VI, which is the core of our report. To this chapter we refer the reader for information as to "project" methods, speech-training ("His hardest labour is his tongue, as if he were loath to use so deceitfull an organ"), the uses of educational apparatus, the place in the training of the child which is occupied by rhythm and movement, by constructive work and free drawing, by the reading of stories, by the love of acting, and finally and in due season, by the 3 Rs. The season of the 3 Rs is not the same for all children. Formal education, generally speaking, has been begun at too early an age in England, earlier than is usual in continental countries and in America; and we endorse the view that this early formal education "has received so large a share of the school time that other activities of equal importance to the young child have been starved". The child should enter upon the 3 Rs merely as if he were entering a fresh field of activity, allied to his customary pursuits. Reading is but another way of looking at pictures, writing but a variety of drawing, and elementary operations in number are associated with most of his childish occupations.

In the course of our report, we have made many reservations as to the efficiency of existing schools for infants. We desire to record our general opinion that such deficiencies as exist arise in very large measure from the physical conditions of the schools, such as the character of the buildings and their precincts, and the size of the classes: these conditions not only limit the opportunities of the teachers, but react unfavourably upon the methods they employ. We obtained memoranda from nearly 400 mistresses of infant and primary schools and departments, as well as of infant divisions and classes, in the areas of different education authorities, both urban and rural, throughout England and Wales. The impression which we have formed is that infant teachers generally are receptive of new ideas and methods, and that great improvements have been made, and are being made, in the training and teaching of children both below and above the age of five. A considerable number of "baby" classes

are now working, so far as conditions will allow, on the model of the nursery class. The results of the experience which has been gained in the more favourable environment of newly-provided nursery schools and classes, have, in fact, been applied in all kinds of infant schools, where it has been found possible to do so.

In Chapter VIII, the brief historical survey of the development of school architecture shows how much more closely suited to the requirements of young children are the schools of open-air design erected during the present century and especially since the War, than were schools of the older kind ; but it shows also that the planning of the ordinary infant school is not yet in complete harmony with modern opinions of its function and activities. In the elementary requirement of floor space, for example, a more generous, and not a less generous, allowance for infants than for older children is an obvious necessity. We consider that the best architectural scheme for the nursery school is one which provides a series of open shelters, set in a garden-playground. In schools for infants generally (especially where there are nursery classes) there should be as close an approximation to this open-air design as circumstances will allow. We are painfully aware of the shortcomings of most of the existing school buildings, judged by such standards ; but we do not consider that the simple requirements which we have enumerated are an impracticable ideal, and we commend them to the attention of education authorities as practical aims which should be ensued both in the adaptation of old buildings and in the construction of new schools.

In dealing with the staffing of infant schools, we have reaffirmed our opinion that teachers should be certificated. At the same time, we have faced frankly the special difficulties which are presented by infant divisions and infant classes in small schools, and we refer the reader to Chapter VII for the discussion of them. In areas having a large number of small schools, in which the infant class may not always be in charge of a certificated teacher, we think that the services of an advisory visiting teacher may be found not less necessary than for some other branches of specialised teaching ; but we realise the danger of such appointments, unless particular care is taken to prevent the stereotyping of educational methods throughout the area. The special requirements of nursery schools and classes have led to the introduction into the schools of an element which is in the strictly technical

sense a non-teaching element. In recommending the general employment of "helpers" we have been obliged to emphasise certain limiting conditions. It is clear that employment as a "helper" cannot be generally regarded as an avenue to the teaching profession. The question, therefore, not merely of the sources of supply, but of the future occupation of these girls after the age of eighteen or nineteen, and the question also of the quota to be employed by any particular authority, become matters of urgent importance. In Manchester, the "helper" has been described as a "student-nurse", a not inappropriate title seeing that the majority of those hitherto engaged have subsequently entered hospitals as nurse probationers. We print in an Appendix a short account of the "Manchester Scheme for Student Nurses".

The question of school staffing cannot be considered apart from the question of the size of the class. It is satisfactory to note that the recent small decrease in the number of classes containing 50 pupils and over has occurred mainly in those for infants and junior children. The total number of such classes in elementary schools is still, however, alarmingly high; on the 31st March, 1932, there were as many as 7,986. We have re-affirmed with some insistence our recommendation that the classes of the primary school, including infant departments, should not contain more than 40 children, with the further proviso that in nursery classes approaching this size there should be one or more "helpers". We find no justification for the view that, as a matter of class-management, classes for young children should be larger than those for older children. In Chapter IV we have noted the change in the conception of the class which has followed upon the more complete acceptance of the ideas of Froebel and his successors. While the class remains the unit for registration, it is ceasing to be a single teaching unit, except for certain collective activities. The resulting composite of "class", "group", and "individual" methods of teaching makes it even more important that the class itself should be of a manageable size. We hope that advantage may be taken of the recent fall in the child population, and of the further decrease forecast in the late Report of the Government Actuary,⁽¹⁾ to put fewer

⁽¹⁾ Board of Education Circular 1426 (28th April, 1933).

The Report shows that on March 31st, 1932, the total number of children on the registers of public elementary schools was 5,419,000. This number will fall by 519,000 to 4,900,000 in the year 1937. According to the actuary's forecast, a decrease of approximately 1,000,000 schoolchildren may be expected by the year 1943, and of 1,238,000 by the year 1948.

children under the care of the individual teacher, and not to reduce the aggregate of teachers. Class-rooms planned to satisfy the requirements of older Codes and Building Regulations should in future contain smaller numbers of children.

In Chapter VII, we have dealt also with the special staffing which is required for nursery schools.

Apart from its educational aspects, its use as a remedial agency, and its value as a channel through which beneficial influences might permeate the home of the child, there was one special aspect of the nursery school or class to which all our witnesses called attention. It was to be a means of ensuring the adequate medical supervision of young children. Opinion was, indeed, united as to the pressing need of ascertaining whether the child's home affords a reasonable prospect of a healthy upbringing for the child, of detecting at an early age any signs of physical abnormality, and of making sure that preventive and remedial measures are sufficiently available. Nevertheless, so long as the attendance of children at school below five years of age remains voluntary (and none of our witnesses expressed the view that it should be made compulsory), the nursery school or class can hardly be the only agency, or even the chief agency, for ensuring adequate medical supervision between babyhood and the compulsory school age. We need to see the infant welfare centre and the health-visiting service extended, and working in conjunction with the school clinic and school-nursing service, and with such schools as there are, or may be in the future, for children below school age. These are the obvious "other means" for ensuring medical supervision during this critical period, to which we refer. They are specially necessary in country districts, where medical inspection and treatment will not be obtained for the children in any large measure through the agency of the nursery school or class. That the development of the health visiting and school nursing service based on the welfare centre and clinic would be practicable is already evident from the experience of some authorities. By its means, preventive measures may often be taken in the homes of the children, and cases of physical defect may be brought to the notice of the parent, referred to the clinic, or treated by a private practitioner.

We are conscious of this hiatus in the health-visiting and medical services, and we received incidentally a large body of evidence on it. Following the text of our reference, we have not discussed specific measures, which might have

involved the consideration of legal and administrative problems not directly connected with "the training and teaching of children in nursery schools and infants' departments". We believe, however, that the general measures we have indicated are ready to hand, and we are informed that they are already being employed to some extent. They will become more completely effective, as the parents of the children are brought to a fuller understanding of the need for them.

All the earlier writers on infant education envisaged the child in its home, and for very young children the development of educational theory and practice has followed this principle. As we state in our report, "the fundamental purpose of the nursery school or class is to reproduce the healthy conditions of a good nursery in a well-managed home". The younger the child is at the time of entry, the more closely akin are the opportunities of school and home. It is this fact which is accountable for the change of attitude towards the child at about the age of five; and this also, broadly speaking, is at bottom of the differences which we have noted between nursery schools and nursery classes, because when children are admitted at the very early age of two years, the school must have even more the character of the home.

The education of young children outside the home has created peculiarly close relationships between teachers and parents; and we have called attention to the many ways in which the character of the school as a social institution finds expression through their active co-operation. By these means the good influences of the school pass into the home, especially where the teacher has a sympathetic understanding of the home conditions of the child.⁽¹⁾ Incidentally, it may be noted that this close association between school and home is characteristic of our educational system in general, with its tendency to regard the school as a place where formal instruction is, if anything, subordinate to social training.

Education outside the home has led also to the sharing of responsibility between the parent and the State, because no general provision is found possible without the intervention of the State. Subsequent changes have affected the measure of the parental responsibility; and the adoption of the age of five as the lower limit for compulsory attendance at school has created a type of public education for young children

⁽¹⁾ As was shown in the evidence of Dr. Gesell, a somewhat different line of approach to the parent has been adopted in America.

outside the home which is almost peculiar to this country. Where the home conditions are good, the best place for the child, until he approaches the age of five, is the home. Any State provision of education at this stage should be complementary to the home, and should strengthen the ties between parents and their children. Nevertheless, the State should have regard to the opportunities possessed by the parent for the suitable upbringing of the child in early years. There are homes where the environment is such that the child is of necessity deprived of his proper supply of fresh air, sleep, and exercise, where suitable food is hard to provide, and cleanliness hard to attain. In such circumstances, the work of the nursery school and class is preventive rather than remedial. The nation cannot afford to leave it undone. Even in more favourable circumstances, the mother may often need advice as to the physical well-being and mental training of her child. We have to determine what are the conditions in which, during the period between babyhood and the compulsory school age, it may be desirable for her to share her responsibilities with a teacher.

The problem of securing proper conditions for the healthy development, physical and mental, of children below the age of five, is a complex in which many social problems meet. The process of its solution should take account of the provision of better houses and the improvement of the child's early environment, of the training of girls at school in housecraft and infant care, of the extension of the health-visiting and medical services and other remedial agencies, and, lastly, of the preservation of home life and its responsibilities. In its educational as in some other of its aspects, we feel that the problem is one for local investigation and solution. We do not think that school provision for children below the compulsory school age should be a definite obligation laid upon the State or the local authority, any more than that the attendance of such children at school should be made obligatory. But there are districts in which it should be accepted as a particular responsibility.⁽¹⁾ Our summary recommendation is that each local authority should make a survey of the needs of its area, and in doing so should have regard to home conditions and the wishes of the parents;

⁽¹⁾ This responsibility will not be confined to areas in which the homes of the children are definitely unsatisfactory. In districts where re-housing has been carried out on the tenement plan, provision for the nursery stage of education may often be not less desirable.

that, after consultation with the Board of Education, it should take such measures as seem desirable to help forward the care and training given by the parents; and that these measures should be directed either towards supplying or towards aiding the supply of education in the nursery stage. By such means will particular conditions be brought into account, and particular needs be met.

CHAPTER I

SKETCH OF THE HISTORY OF THE DEVELOPMENT OF INFANT EDUCATION AS A DISTINCT PART OF PRIMARY EDUCATION IN ENGLAND AND WALES FROM THE BEGINNING OF THE 19th CENTURY TO THE PRESENT TIME

PART I.—*The Development of Infant Schools and Departments down to 1870.*

(1) Organised infant education in England and Wales has gradually come into existence within the last 120 years. It is true that the importance of the training and teaching of very young children was recognised by several great thinkers of the 17th and 18th centuries. Thus J. V. Andreae in his *Christianopolis* (1619)⁽¹⁾ and J. A. Comenius in his *School of Infancy* (1633)⁽²⁾ both discuss the training of infants, but they and later writers (e.g. Leibniz, Richard Edgeworth, Maria Edgeworth and Pestalozzi) down to Froebel, viewed infant education up to the age of six as the training of children within the home.

Froebel (1782–1852), working under the influence of Rousseau and Pestalozzi, was the first great educator on the Continent who endeavoured to provide a coherent scheme of infant education based on the nature of the child in order to improve and supplement the training given by the mother and the nurse.

The Infant School sprang into existence in three different places during the last 160 years, each of its founders being

⁽¹⁾ Andreae thought that up to the age of six children should be trained at home. *Reipublicae Christianopolitanae Descriptio*, Strasburg, 1619, Chapter 53. Samuel Gott of Battle (1613–1671) who was much influenced by Andreae, held that children should be educated at home up to the age of 10. *Nova Solyma*, London, 1648, I. 339.

⁽²⁾ This celebrated treatise dealing with the education of children up to the age of six, was an expansion in German of Chapter XXVII of the Czech draft of Comenius' *Didactica* written in 1628. It was published in 1633 at Leszno in Poland. The Latin translation published in 1657 at Amsterdam in Volume I of Comenius' *Opera Didactica Omnia*, is entitled *Schola Infantiae sive de provida iuventutis primo sexennio educatione*. Comenius states that his *School of Infancy* was translated into English in 1641. A. Patera, *Korrespondence J. A. Komenskeho*, (1892), p. 39.

probably ignorant of the work of the others. The first of these schools was founded at Waldbach in Alsace in 1769, the second in the small factory town of New Lanark in Scotland in 1816 and the third in the village of Blankenburg in the Thuringian Forest in 1837. From these, and more particularly from the two last named, the infant school of Great Britain has sprung. It is generally believed that the first public infant school in Europe was that established in 1769 by J. F. Oberlin (1740–1826) who was for 59 years *pasteur* of Waldbach, a remote parish in the Vosges in Alsace. With the help of Sara Banzet and later of Louise Schepler, an Infant School was opened in 1769 at Waldbach in which the young children played together under the charge of *conductrices* while the older children were learning to spin, to knit and to sew. The elements of Scripture and natural history were taught by means of pictures, and much attention was given to drawing and map-making. In fine weather the *conductrices* took the children for walks, and encouraged them to find the flowers which had been described to them in school. Infant schools were established in France, Switzerland and in some of the German States largely on the model of Oberlin's school at Waldbach. For instance, Princess Pauline of Lippe founded an infant school (*Paulinenanstalt*) at Detmold in 1802, which is still in existence.⁽¹⁾

(2) So far as is known, the first school in Great Britain designed expressly for infants was that established in 1816 by Robert Owen (1771–1858), as a part of his New Institution at New Lanark in Scotland. Before giving an account of this school, which marks the opening of a fresh phase in infant training, it will be convenient to describe briefly the general provision for primary education available in England and Wales in the early decades of the 19th century.

Apart from private venture schools and dame schools, the most important means of popular education were the day parochial and charity schools, the Sunday-schools, and the monitorial schools established under the influence of Bell and Lancaster. None of these, except the dame schools, made much provision for children under the age of six. The Sunday-schools which had originated in "the dame Sunday-School for

⁽¹⁾ Princess Pauline's School, which she herself described as a *Pfleganstalt*, was modelled on the *salles d'asile* established about 1801 in Paris on the lines of Oberlin's school at Waldbach.

R. R. Rusk, *History of Infant Education* (1933), pp. 114–118; H. Kiewning, *Fürstin Pauline zur Lippe, 1769–1820*, pp. 143–5.

ragged and turbulent boys," established by Robert Raikes at Gloucester in 1780, made no special provision for infants till the middle of the 19th century, and such parochial and charity schools as existed throughout the country admitted children for the most part at the age of seven. The monitorial schools did not originally make provision for children under the age of six. The British and Foreign School Society founded in 1808, and the National Society for Promoting the Education of the Poor in the Principles of the Established Church, founded in 1811, supported the monitorial systems of Joseph Lancaster and Dr. Andrew Bell respectively. The chief aim of these systems was to impart to children of the age of six and upwards the rudiments of religious knowledge and the 3 Rs with a little needlework for the girls. One of the rules of the British and Foreign School Society was that no child under the age of six should be admitted to a British School. In practice, however, children under that age were admitted to many of the British Schools,⁽¹⁾ and it is known that children of the age of four were admitted in many districts to the monitorial schools connected with the National Society. It would, therefore, seem that the age of admission depended largely on local conditions and the size of the school. As time went on, and as the monitorial system failed to realise its early promise, the average age of pupils in the British and National Schools tended to fall. In 1850 approximately 50 per cent. of the children in attendance at the "elementary schools" were under the age of eight. In general, and where there was room, young children were admitted to the monitorial schools, but the teaching given to them was not to be commended. Thus, Matthew Arnold, in his Report for 1852, writes:—"In the institutions which I have visited during the past year, I have continually felt the want of infant schools. It seems to me that more good schools are clogged and impeded in their operations by a mass of children under 8 years of age at the bottom of them than from any other cause."⁽²⁾

⁽¹⁾ A number of infant schools, either separate or housed in the same building with the monitorial school, were established after 1840 under the auspices of this Society (see the report by Mr. Fletcher, H.M.I. on such schools in *Minutes of the Committee of Council on Education* (1846) II, 214). In 1855 the Society established a model infant school in London in connexion with the Borough Road Training College. Binns, *A Century of Education*, p. 160.

⁽²⁾ M. Arnold, *Reports on Elementary Schools, 1852-1882*. H.M. Stationery Office, 1920, p. 14.

The traditional dame schools were, in a sense, infant schools.⁽¹⁾ Older children were admitted, but it would seem that the majority of the pupils were children between the ages of two or three and seven. At their best (as will be seen from the summary of the Report of the Newcastle Commission of 1861 in § 9 below) the dame schools discharged the function of public nurseries for very young children and served as places of security as well as of education, since they were the most obvious means of keeping the children of poor families out of the streets in towns, or out of the roads and fields in the country. The teachers were often elderly or invalid women, who were frequently very ignorant. The rooms in which these schools were held, were in many instances, ill-ventilated, ill-kept, and unhygienic.⁽²⁾ Some of them, however, especially those in villages, were fairly efficient,⁽³⁾ and in some cases were encouraged by the local clergy, who desired to do something towards promoting education in rural areas. For instance, in 1839, the Dean and Chapter of Canterbury contributed to the support of a dame school which the Vicar of Herne Hill had established at his own expense at Dunkirk in Kent.⁽⁴⁾

(3) The first infant school in Great Britain was that established in 1816 by Robert Owen at New Lanark in Scotland. Children were admitted at the age of three and cared for while their parents were at work in the local cotton

(1) There were in 1819, 3,102 dame schools containing 53,624 pupils. (*Report of Parliamentary Inquiry*, 1819.)

(2) Henry Kirke White (1785–1806) in his poem *Childhood* composed in 1799, gives a pleasing description of Dame Garrington, whose school on the outskirts of Nottingham he attended from 1788 to 1791.

The Remains of H.K.W. with an account of his life, by Robert Southey (1808), I.2, 203–4.

Cf. the literary and rather highly coloured description of an urban dame school given by George Crabbe (1754–1832) in *The Borough*, Letter XXIV., (1810).

(3) Thomas Cooper (1805–1892) the Chartist, states in his autobiography that at the age of three he learnt to read at Dame Brown's School, Exeter, and could even repeat Aesop. Later he entered Dame Gertrude Aram's School at Gainsborough, and he speaks of her also in appreciative terms. (*Life of Thomas Cooper*, pp. 5–7.)

(4) *Central Society of Education*, Third Publication, London, 1839, p. 116.

Cf. Joseph Lancaster's description of these Dame Schools which he calls "Initiatory Schools," in his *Improvements in Education*, 5th edition (1806), p. 166 :

"I am an advocate of this class of schools as women manage them; the infancy of their pupils requires a combination of the school and the nursery, and these schools answer that description when under proper management."

mills. Owen described this infant school in his evidence given on June 11th, 1816, before a Select Committee of the House of Commons, which under the chairmanship of Henry Brougham was enquiring into "the education of the lower orders of the Metropolis". He explained that the children were received into a "preparatory or training school" at the age of three, in which they were constantly superintended, to prevent them acquiring bad habits, to give them good ones, and to form their dispositions to mutual kindness. "The school in bad weather is held in apartments properly arranged for the purpose, but in fine weather the children are much out of doors that they may have the benefit of sufficient exercise in the open air.⁽¹⁾ In this training school the children remain two or three years, according to their bodily strength and mental capacity. When they have attained as much strength and instruction as to enable them to unite, without creating confusion with the youngest classes in the superior school, they are admitted into it, and in this school they are taught to read, write, count, and the girls in addition to sew".

Owen's son, R. D. Owen, in his *Outline of the System of Education at New Lanark* (1824), states that the infant classes from two to six years "remain in school about half the time (about 2½ hours). During the remainder of the time they are allowed to amuse themselves at perfect freedom in a large paved area in front of the Institution under the charge of a young woman . . . By this means these infants acquire healthful and hardy habits".⁽²⁾

⁽¹⁾ Cf. *Life of Robert Owen, written by himself*, London, 1857, p. 175.

"Books in infant schools are worse than useless. . . ." "The children should be out of doors in good air at play as much as the weather and their strength will permit. . . ." ". . . . In our rational infant school at New Lanark a mere child's toy was not seen for upwards of 20 years. When, however, any infant felt inclined to sleep, it was quietly allowed to do so."

⁽²⁾ It is very difficult to determine how far Owen's educational ideas were original. Mr. G. D. H. Cole in his article on the Educational Ideas of Robert Owen in the *Hibbert Journal* for 1925 (Vol. XXII, p. 137) writes: "Owen owed very little to others, arriving at largely similar conclusions with other pioneers by a different road based on his own experience and peculiar philosophy of character".

Cf. Owen's somewhat patronising reference to Pestalozzi in his autobiography "Our next visit (in 1818) was to Yverdon to see the advance made by Pestalozzi. . . . He was doing, he said, all he could to cultivate the heart, the head and the hands of his pupils. His theory was good, but his means and experience were very limited and his principles were those of the old system."

Life of Robert Owen written by himself. London, 1857, p. 177.

In 1818 a group of advanced Whigs and Radicals including Lord Lansdowne, Brougham, James Mill, and others, combined to establish an infant school on Owen's lines at Brewers Green, Westminster,⁽¹⁾ placing it in charge of James Buchanan, a weaver, who had been specially brought from Owen's New Institution.⁽²⁾

(4) In 1820 Joseph Wilson opened the second infant school in England at Spitalfields, placing it under the charge of Samuel Wilderspin, who was a friend of Buchanan and had visited the infant school at Westminster.⁽³⁾ Wilderspin elaborated a system of infant education, which left its mark for many years on the curriculum and buildings of infant schools and elementary schools.⁽⁴⁾ Wilderspin, like Owen, used the playground not only for physical exercises and recreation, but also for mental and moral training.

He was closely associated with the short-lived Infant School Society, which was founded at London in 1824, with J. P. Greaves, the friend of Pestalozzi,⁽⁵⁾ as its Secretary.

Wilderspin published a series of books expounding his system of infant training,⁽⁶⁾ and by frequent journeys throughout the country did much to popularise the movement for infant schools. To him these schools owed the "gallery" and a mistaken zeal for introducing children to formal

(1) On the brass plate on the door the school was described as "The Westminster Free and Day Infant Asylum."

(2) Cf. Lord Brougham's speech of 21st May, 1835 in the House of Lords:—

"In this country I think it is now 17 years since my noble friend Lord Lansdowne and I with some others began the first of these seminaries, borrowing the plan as well as the teachers from Mr. Owen's manufactory at New Lanark."

(3) The beginnings of the Infant School Movement are described by Thomas Pole, M.D., in his *Observations relative to Infant Schools designed to point out their usefulness*, etc. Bristol, 1823.

The first Church Infants' School was opened at Walthamstow in 1824 by the Rev. William Wilson, brother of Joseph Wilson. It was first held in the Vicar's tithe barn.

Cf. *The System of Infants' Schools* by the Rev. Wm. Wilson, Vicar of Walthamstow. London, 1825.

(4) Cf. S. Wilderspin, *The importance of educating the infant poor from the age of 18 months to 2 years. Containing an account of the Spitalfields Infant School and of the new system of instruction there adopted*. London, 1824.

(5) Cf. J. H. Pestalozzi, *Letters on early education addressed to J. P. Greaves, Esq.*, translated from the German manuscript, London, 1827.

(6) e.g. *Early Discipline illustrated, or the Infant System progressing and successful* (1832). On the Title Page of his *System of Education for the Young* (1840) Wilderspin describes himself as 'Inventor of the System of Infant Training'. Lord Brougham refuted this claim in his article on "Origin of Infant Schools" in *The Westminster and Foreign Quarterly Review*, Vol. XLVI (1847), pp. 220-222.

instruction at too early an age. The philosophical basis of his system was crude and vague, and he persistently confused education with instruction. Nevertheless, he realised the importance of making the infant school bright and cheerful, and accordingly adapted his instruction in order to amuse the children. He laid great stress on the importance of physical development, to which end a playground was essential, and games had to be devised. Care had to be taken not to keep the children too long in one posture. Teaching was provided by means of pictures and objects, and in theory at any rate the infants were supposed to be left free to examine, compare and express what they saw. Such was Wilderspin's theory, but in practice many of the infant schools established under his influence tended to adopt mechanical methods of teaching and repressive forms of discipline, and to aim at producing infant prodigies.

(5) Another pioneer in the field of infant education in Great Britain was David Stow, who began his philanthropic work in Glasgow about 1810. Stow, who visited Wilderspin's School at Spitalfields in 1820, founded the Glasgow Infant School Society in 1827, and in 1828 established a model infant school in the Drygate at Glasgow (which was moved to the Saltmarket in 1834). He outlined a graded system of elementary education, viz.:—initiatory departments for children between the ages of two or three and six, and juvenile departments for children between the ages of six and fourteen. His infant school is described in his book entitled *The Training System adopted in the Model Schools of the Glasgow Educational Society* (1836). It was limited to 140 infants, and was to be in charge of a master and mistress. In general arrangement it resembled Wilderspin's infant school, with its playground, its long main room with a gallery⁽¹⁾ at one end, and its small classroom. It was called the Initiatory Training School, since the teacher's chief aim was not to be instruction, but training, whereas the ordinary infant school of the period tended to stress repetition and "the old rote work". The principal object of the training was the development of aptitudes and the formation of habits. The teacher was to see that the children were acquiring ideas, not mere words and to this end stress was to be laid on "picturing out".

⁽¹⁾ Cf. D. Stow—*The Training System* (1836), p. 69.

"The gallery is an indispensable part of the machinery, since it enables the children to see the master and the master to see them." . . .
 "The social principle is concentrated in the gallery. . . . The attention of all is secured ; all receive one lesson, and all learn."

The following description of the Model Infant School in the Saltmarket from the *Glasgow Herald* of 15 June, 1835,⁽¹⁾ (written probably by Stow himself), gives a vivid, though perhaps unduly favourable account of the aims and methods of his system :—

“ The physical health and habits of the children are attended to in the playground—everything is fully explained, and the understanding is fed by the eye upon every picture and object which surrounds them in their airy school-room. The children are taught and trained to habits of cleanliness, order and obedience to parental authority, and to those set over them ; also kindness to one another, and, above all, their duty to God.... They seldom sit on their seats more than fifteen minutes at a time without exercise. All is joyous activity—only pictures and objects are in use, and one-third of their time is spent in amusements in the playground,⁽²⁾ in swinging, running, singing, building castles with wooden bricks, etc., or examining the beauty and variety of the flowers ”.

Stow did not claim to be the founder of infant schools, nor indeed in the field of infant education was he a man of great originality. He developed the ideas underlying Owen's Infant School at New Lanark in a more humane and liberal spirit than Wilderspin. Later, in the Free Church Normal College at Glasgow he trained many teachers for work in infant schools and elementary schools both in Scotland and England. His influence on infant education in England was very considerable.⁽³⁾

Owing to the importance which he attached to religious teaching, he succeeded in gaining for the infant school

⁽¹⁾ Quoted in *The Training of Teachers in Scotland*, by Dr. Robert R. Rusk, Edinburgh (1928), pp. 52–53.

⁽²⁾ Cf. D. Stow, *The Training System* (1836), p. 76 :—

“ Every infant school ought to have a suitably sized playground, and under the training system this is indispensable. . . . Without such, the school may be a School for teaching infants, but not for infant training.”

In his description of the playground on p. 77, he suggests that it should be covered with gravel and surrounded by a wall with flower-beds about 3 feet wide under the wall.

⁽³⁾ T. Morrison's *Manual of School Management* (1859), which was extensively used in England especially in Wesleyan Schools, recognises the need for an infant class. In the Preface Morrison acknowledges his debt to Stow.

Cf. also Charles Reed, the *Infant Class in the Sunday School* (1857), in which the influence of Stow's “ System ” is very noticeable.

movement the support of the Church of Scotland, which had hitherto viewed it with some disfavour, on account of Owen's rationalistic tendencies.⁽¹⁾

Through the efforts of Stow and Wilderspin, large numbers of infant schools were established in England and Scotland. A Prospectus of the Model Infant School in the Saltmarket issued by the Glasgow Infant School Society in 1835, states that infant schools were instituted in the interests of the children of poor parents who in their struggle for existence could not afford the means of education, nor devote the time necessary for the careful rearing of a family. The infant schools, which were evidently what would now be called "nursery schools," were intended for children of both sexes from the age of two to that of six. Young children were to be taken from the risks of the streets and from the strife and wrangling not uncommon in their own families, and the infant school was regarded as the most suitable protection against such evils.⁽²⁾ Though the chief aim of these schools was to provide religious and moral training, secular instruction was not neglected. Furthermore, the infant schools provided amusement and occupation equivalent to amusement. The children were encouraged to exercise their powers of seeing, hearing, and touching, in a way that afforded them at once information and pleasure.⁽³⁾

¹ Cf. 'Supplement to Moral Training and the Training System' by David Stow (1839), p. 23:—

"Two departments at least are necessary to a complete system of education, viz. infant and juvenile, as children of 4 and 5 years of age do not sympathise with each other in understanding or habits. In some cases only one can be proceeded with. Our advice would be, begin at the beginning—commence with the infant department; for without it your juvenile school will be much less efficient. It is of great importance . . . that no child be retained in the infant department beyond 6 years of age, and that no child be received into the juvenile department till he reaches the age of 6."

⁽²⁾ Cf. A Prospectus of the Brechin Infant School (dated 10th July, 1835), printed in *Education in Angus*, by J. C. Jessop, London University Press, 1831, pp. 279–283.

Cf. also the following passage from the article on Primary Schools in Volume XXI of the *Penny Encyclopaedia* (1841):—

"Infants' Schools are designed to prevent evil, and to train young children in the practice of virtue and kind feeling, particularly in those cases in which parents from their vocation are unable, or from their dispositions are unwilling, to take proper care of their offspring."

⁽³⁾ Cf. the following passage from the article on Primary Schools in Volume XXI of the *Penny Encyclopaedia* (1841):—

"The Infant School system makes the schoolroom a nursery and a playground in which virtue, intelligence and love preside, direct the movements and regulate and foster the emotions. The scholars are instructed when they play and learn to associate pleasurable feelings with the school pursuits."

(6) The training of teachers for infant schools was first seriously begun by the Home and Colonial Institution, later known as the Home and Colonial Infant School Society, which was founded in 1836 to establish infant schools and to train teachers for work in them. The principal promoters of this Society were the Rev. Charles Mayo⁽¹⁾ (1792–1864) and his sister Miss Elizabeth Mayo (1793–1865). Mayo had come under the influence of J. H. Pestalozzi (1745–1827) with whom he had lived at Yverdon from 1819 to 1822. The Society originally intended to train teachers for children under the age of seven, but later extended its scope to prepare them to deal with pupils up to the age of ten. Its first Report, dated February, 1837, states that “to guide and govern an Infant School well calls for wisdom to discern, versatility to modify, firmness to persevere, judgment to decide. . . . No uneducated or undisciplined mind can supply the incessant care, the watchful diligence, the unwearied patience necessary to manage small children”. The Society set out to reduce infant instruction to a system, and to that end founded a model infant school and prepared and published a set of books for the use of teachers.⁽²⁾ Mr. Tufnell, an Inspector of the Education Department, who visited this school in 1847 was favourably impressed. He writes:—

“The usual course of instruction is to produce to the children the cast or picture of some animal, or mineral, or plant, or some specimen of manufacture, which is made the subject of the lesson. The chief object in the method of instruction adopted with the youngest classes is to cultivate the faculty of observation. . . . The principle is, that the child should first be exercised in forming clear notions, and then taught how to express them. Thus the perception of colour is first exercised by showing the class a sheet containing patterns of various colours, and desiring them to pick out from a heap of cards of different colours such as correspond with any particular colours pointed out on the sheet. In a subsequent lesson they are taught to affix the right appellation to the qualities they have

(1) C. Mayo, “*Observations on the Establishment and Direction of Infants’ Schools*,” being the substance of a lecture delivered at the Royal Institution in May, 1826, London, 1827.

(2) e.g. Elizabeth Mayo, *Lessons on Objects as given in a Pestalozzian School at Cheam, Surrey*, second edition, London, 1831.

Practical remarks on Infant Education for the use of Schools and Private Families by the Rev. Dr. Mayo and Miss Mayo, London, 1837.

Elizabeth Mayo, *Model Lessons for Infant School Teachers and Nursery Governesses* (1838).

discovered. It must have been observed by all who have paid much attention to schools, and the remark has been made in the Reports of several of the inspectors, that there is a want of harmony between Infant Schools and those for children of maturer years. I believe it would be a truer, though less polite statement of the case, to assert that while in most Infant Schools, something was taught, in most other schools, at least in the lower classes, nothing was taught".⁽¹⁾

The effect of the training given in the Home and Colonial Society's Normal Seminary was to promote the organisation of Infant Schools into (i) "babies" under the age of three; (ii) "infant children" between the ages of three and six; (iii) "juveniles" from the age of seven to that of nine or ten, in schools where there was such a class.

(7) It will be seen from the brief account given above of the work done by Owen, Wilderspin and Stow, and by the Home and Colonial Society under the influence of Charles Mayo and his sister, Elizabeth, that the infant school took shape and form at a time when there was a widespread movement towards the provision of "elementary" education on a large scale.⁽²⁾ From the very inception of that movement there was a tendency to differentiate the provision made for infants under the age of six from that of children over that age. The progress of the industrial revolution in the early part of the 19th century led to a general and insistent demand for child labour. Any formal education that was given in the dame schools, the parochial schools, and the monitorial schools associated with the National Society or with the British and Foreign School Society, began early, and it was regarded as expedient that the schooling of the majority of children should end about the age of ten. The need of the time was for an institution that would combine the functions of school and nursery. The early infant schools such as those described above were expressly designed to fulfil the dual function of (a) a place for taking care of children while their mothers were at work, and (b) an initiatory school where the elements of reading, writing and arithmetic might be acquired. Owing in no small degree to the writings of Robert Owen, and the example of his Infant

⁽¹⁾ *Minutes of the Committee of Council on Education* (1847). II. 545.

⁽²⁾ Mr. J. Fletcher, H.M. Inspector of Schools, wittily observed in his Annual Report for 1845 that, "although Infant Schools come last in the history of schooling, they come first in the history of the scholar."
Minutes of Committee of Council on Education (1845) II, 212.

School at New Lanark, to the influence of practical teachers like Buchanan and Stow, and to laymen like Henry Brougham, the movement for the provision of infant schools laid stress from the outset on physical well-being, on training the affections, and on the formation of good moral and social habits. The infant school was to be a happy place, a scene of ordered activity where little children might develop under the guidance of adult teachers, acquiring a certain knowledge of nature and of the world around.⁽¹⁾ The following passage from Brougham's Essay "*Practical Observations upon the Education of the People* (1825)", shows the important position which infant schools, as distinct from Elementary Schools,⁽²⁾ had attained at that date :—

"You are aware that these (*observations*) contain a portion of a larger discourse . . . upon the important subject of Popular Education, in its three branches, Infant Schools, Elementary Schools (for reading and writing), and Adult Schools."

The essay on Infants' Schools by C. Baker on pages 1-48 of the *Third Publication of the Central Society of Education* (1839) gives an interesting account of the Infant School movement at that period. Mr. Baker describes (pages 6 and 7) the objects of infant schools as follows :—

"Infants' Schools contemplate the training of children between the ages of two and six years. They receive infants from the parental roof to become to them 'father,

(1) It was not without reason that Lord Jeffrey, addressing the Edinburgh Infant School Society in 1829, referred to the infant school there as "this well-regulated systematic Nursery."

Cf. also the following passage from the Report by Mr. J. Fletcher, H.M.I., on Infant Schools on the principles of the British and Foreign School Society (1845) :—

"It is not surprising that the mother of a working man's family, who is herself perhaps employed in some branch of industry, and almost invariably has all the labours of her little household to perform in very narrow space, should begin to consider children of even 2 or 3 years old very much 'in the way' during the greater part of the day. . . . In fact, she very properly seeks a nursery, and is prepared to subscribe for one; and to help to provide for her an airy, healthful nursery in which her infant children shall be happy and safe, is one of the greatest kindnesses which her wealthier neighbours can offer her."

Minutes of Committee of Council on Education (1845), II, 216.

(2) In his speech in the House of Lords on 21st May, 1835, Brougham modified this position. After pleading for State aid for elementary schools, he said that it was incumbent on Parliament to encourage in like manner the establishment of infant schools, especially in the large towns. J. E. G. de Montmorency, *State Intervention in English Education*, pp. 297-301.

and friend, and tutor, all in one' Every device which the most judicious parent or well-experienced teacher can worthily employ in promoting the welfare of a child committed to their guidance, must be put in requisition in these schools or they will ill deserve the expressive title given to them by Lord Jeffrey of 'well-regulated, systematic nurseries'. The home and the school are to be in them united; the kindness, the love of the indulgent and faithful mother, is to be blended with the intelligent firmness of the enlightened teacher. The bodily health and strength are to be sustained by such appropriate and varied exercises as will tend to the equal development of every part of the physical system. The moral dispositions and habits are to be conformed to the standard of the Christian Scriptures by every example that can be made to bear upon their elucidation, Things rather than words, or, at all events, things and examples *before* words and explanations, must be the course of the Infants' School teacher if he would be successful in his labours.

"Constant cheerfulness must reign in an Infants' School; occasional excitement is good, but the frequent recurrence of such a stimulant becomes a burden to all. The school must not be allowed to become a plaything, nor the frequent scene of light and frivolous amusements, nor yet an exhibition-room for the display of a few acquirements which surprise the multitude, but which neither improve the minds nor the hearts of the children."

Mr. Baker stresses (page 8) the importance of physical training :—

"One especial object, then, with every Infants' School, should be the physical welfare of the children. Their health is to be sustained and improved; everything conducing to such improvement, as food, clothing, cleanliness, exercise, must be made an object of care and watchfulness Physical exercises are best carried on simultaneously with the development of the reasoning faculties, in the pauses which are needful for the repose of these faculties; they afford that relief which is so essential when the mind has been actively engaged. The means in use at some of the Infants' Schools, and others that are recommended, are, 1st, a well-ventilated and lofty school-room; 2nd, muscular motion, introduced both into their lessons and their

amusements; 3rd, easy gymnastic exercises, adapted both for the open air and for the school-room; 4th, social games, or plays; 5th, useful employments, to accustom them early to habits of industry. . . . we would also suggest an open shed, for shelter and exercise in wet weather.” (1)

Mr. Baker insists that the second care of the teachers should be the moral and social training of the children.

“It is not that we regard moral training as an object of secondary value; but that the condition of health is indispensably necessary to the culture of the moral and social affections and the intellectual powers.”

He points out that the first moral habits a child forms in his mind affect his principles more strongly than any that are formed at a later period; “and it is in this view that Infants’ Schools are to be considered as institutions of first-rate importance.”

In the later part of his paper Mr. Baker discusses in some detail the “intellectual system” of infant schools. He expresses the opinion that valuable knowledge may be imparted during infancy, without endangering the health of the pupil, provided sufficient time for recreation be also given. “But this knowledge must be of a nature within the capacity of a child to understand; and it must be present at such times and in such a manner, as to be acceptable, and even received with eagerness.” (2)

(1) Cf. the following passage in the Report by Mr. J. Fletcher, H.M.I., on British and Foreign Infant Schools (1845):—

“Certainly it is not disparaging to the dames’ school to refrain from comparing the kitchens in which they are held with the handsome halls provided for most of the infant schools, or the airy yards annexed to them with the dirty courts and alleys into which alone the former can turn the little ones for external air. The manual exercises, the march, the cheerful song, the gymnastic play, under a superintendence too cheerful to be felt as oppressive; these are sources of health and vigour with which the confinement of the dame school, the exigencies of the mother’s home, or the vagabondage of the streets, has nothing to compete.”

Minutes of the Committee of Council on Education (1845), II, 218–219.

(2) Cf. the following passage in the Report by Mr. J. Fletcher, H.M.I., on infant schools on the principles of the British and Foreign School Society (1845):—

“The theory of the more modern infant schools which I have visited appears to contemplate an education at once physical, intellectual, industrial, moral and religious. The occupations of each child, at whatever age, on every day of its attendance are more or less directed into all these channels. . . . In fact, to implant good habits of body, heart and mind . . . is the larger part of the work undertaken by the best infant schools for those portions of our juvenile population who more peculiarly need such asylums.”

Minutes of Committee of Council on Education (1845), II, 218,

(8) The first Minutes issued in 1839–1840 by the newly appointed Committee of Council on Education show that the idea of infant schools, as distinct from elementary schools, was already well established, and that the Secretary, Mr. James Phillips Kay (afterwards Sir James Kay-Shuttleworth), fully appreciated the importance of having separate infant departments, or even separate infant schools where possible. The collection of sixteen model plans for schools of varying sizes appended to the Minutes in question includes no fewer than ten plans showing distinct provision for infants, e.g. a school for 30 children and 20 infants ; a school for 300 children and 150 infants ; a separate School for 110 infants.⁽¹⁾

The following passage from the Minute explanatory of the plans of school-houses (February 20th, 1840), shows that the importance of infant schools was recognised by the Committee of Council on Education :—" The value of infant schools is daily rendered more apparent, by the evidence which transpires of the extent to which elementary education is interfered with, by the employment of the children in assisting their parents at an early age, not less in the agricultural occupations of rural districts than in the manufactories of towns." (*Minutes* for 1839–40, p. 47.)

The Inspectors' Reports published in the annual *Minutes of the Committee of Council on Education* from 1840 to 1861, show how lacking in system was the whole organisation of primary education.

Indeed on a broad retrospect of the development of State intervention in education during the 19th century down to the publication of the report of the Newcastle Commission in 1861, it is true to say that Parliament was largely concerned with the rescue and protection of young children from premature employment in factories and mines. The Factory Acts (1833 to 1867) and the Mines Act of 1860 contain various educational provisions applying to children working in factories and mines. Nevertheless, the years between the establishment of the Committee of Council on Education in 1839 and the publication of the Report of the Newcastle Commission in 1861 were a time of vigorous and significant educational experiment. The monitorial " systems " of Bell and Lancaster and the infant " systems " of Wilderspin and Stow, were undergoing considerable modifications in practice.

⁽¹⁾ A series of *Special Questions on Infant Schools* was included in the earliest Instructions to Inspectors issued in August 1840 ; cf. *Minutes of Committee of Council on Education*, 1839–40, pp. 43–45.

The establishment of infant schools on a wider scale was undoubtedly retarded down to 1870 by the traditional dame schools.⁽¹⁾ Nevertheless, as the more enlightened ideas about infant education deriving from Wilderspin, Stow and Mayo, gradually spread, infant schools were established in many places, sometimes as independent institutions and sometimes as departments or classes attached to the monitorial day schools.⁽²⁾ In some instances, the infant school was established before the elementary school. This sometimes happened in parishes consisting of a main village (containing an elementary school), with several outlying hamlets, since the parents in these places were naturally reluctant to allow children under the age of six or seven to walk any considerable distance. Small infant schools of this type were frequently established in connection with mission halls and Sunday schools.⁽³⁾

Owing largely to the work of the Home and Colonial Society infant schools were from the first better staffed than the day monitorial schools.

(1) "The want of Infant Schools has for a long time been evident from the number of Dame Schools which have for so many years existed in all parts of the country, nominally for educating, but really only for taking charge of the children while their parents were at work. The fees received by these "Dames" amounted to 3d. or even 4d. a week for each child, and the business was a source of profit to persons who could earn a living in no other way. To their consequent opposition may be attributed to a considerable extent the comparative slowness of the development of the regular Infant School system, which at the present day (1871) is far from being perfect".

G. C. T. Bartley, *The Schools for the People* (1871), p. 107.

(2) The article on Primary Schools in Vol. XXI of the *Penny Encyclopaedia* (1841) after quoting the evidence about infant schools given by Mr. J. R. Wood and Mr. Kay (afterwards Sir James Kay-Shuttleworth) to the Parliamentary Committee on Education in 1838, states that "by general admission the infant schools give the best direct instruction to the children of the poor" (*op. cit.* XXI, 44-45). *Report from Select Committee of the House of Commons on Education of the Poorer Classes* (1838), §§ 36; 1157; 1061.

(3) The following passage from the suggestions of the National Society for the provision of a building for the joint purpose of Sunday school and day school helps to explain the circumstances in which small infant schools were often founded :—

"The Sunday School may pave the way for the establishment of a day or at least of an infants' school; and if these cannot be secured, it seems the more desirable to promote the establishment of a Sunday School. Schools are sometimes erected to serve the double purpose of a school and Chapel. The Committee of Council and the National Society will assist in such a case *provided the prominent feature in the plan be the permanent School-room, duly secured for that purpose by deed, and not the Chapel.*" (*Church Education Directory* (1853), p. 21. in infant schools of this type in small outlying villages the practice frequently grew up of keeping children till the age of nine or even ten.

In 1854 the Committee of Council on Education issued a Minute designed to encourage training colleges to educate mistresses for infant schools. No college could obtain the benefits offered, unless it provided a special course of study for intending infant teachers. Pupils who went through this special course extending over a year were at first examined as registered teachers and, if successful, were afterwards examined before Her Majesty's Inspector in respect of their practical ability to teach young children, and obtained a first or second class certificate.

These Regulations were modified by the Minute of April 24th, 1857, which offered Second Class Queen's Scholarships to Pupil Teachers who had been apprenticed to the mistresses of infant schools, and also to a limited number of other young persons whom the Inspector at his annual visit considered by their manners and address suited for dealing with very young children.

(9) An important stage in the development of both infant and elementary education is marked by the Report of the Royal Commission appointed in 1858 under the Chairmanship of the Duke of Newcastle—"To enquire into the state of public education in England", "and to consider and report what measures, if any, are required for the extension of sound and cheap elementary education to all classes of the people".

In their Report, published in 1861, the Commissioners classified the institutions for the education of the independent poor in reference to their objects as "Infant Schools or schools for children above infancy, day schools or evening schools, week-day schools or Sunday schools." The Commissioners pointed out that the infant schools received children up to the age of seven, beginning with the earliest age at which they were able to walk alone and to speak. They discharged the function of public nurseries for very young children and were of great utility as places of security as well as of education, since they were the only means of keeping children of poor families out of the streets in town, or out of the roads and fields in the country. The Commissioners distinguished two classes of infant schools, viz: private or dame schools, and public infant schools, which frequently formed a department of the ordinary day school. The dame schools were very common in 1861 both in town and country. They were frequently little more than nurseries in which "the nurse collected the children of many families into her own house instead of attending upon the children of some one family".

These dame schools, which were generally taught by elderly women, might be useful in remote villages, but were generally very inefficient and were often ill ventilated, crowded and dirty.⁽¹⁾

The public infant schools presented a different appearance. The Commissioners pointed out that great attention had been bestowed on their organisation, and in the best infant schools much was done, and much even was taught. The Commissioners after quoting from various official reports and from their own evidence, stated that, in their opinion, infant schools formed a most important part of the machinery required for a national system of education, inasmuch as they laid the foundation in some degree of knowledge, and in a still greater degree of habits which were essential to education. The value of infant schools depended almost wholly on the tact, patience, sympathy and ingenuity of the teacher. They considered that more training colleges were required for infant school mistresses. "Their office requires a special qualification and, therefore, special education". The Commissioners recommended that scholars under the age of seven should not be examined, but that the amount of the grant should be determined by the average number of children in daily attendance.

(10) It devolved on Robert Lowe (afterwards Viscount Sherbrooke), as Vice-President of the Committee of Council on Education, to make certain administrative changes to meet the criticisms of the Royal Commission on existing arrangements, particularly in "Day Schools". The Revised Code of 1862 accordingly instituted a system of six standards, corresponding to the six years of school life between the end of the infant stage and the age of twelve. Grant could not be earned by children above that age, and as the first standard examination was for children of six to seven years of age, the younger children or infants were not officially brought under the drastic conditions of the Code. Nevertheless, the Code had an important indirect effect on infant schools and departments, since the strain of preparing children of the age of six to pass into standard I reacted on the teaching of children under that age. This determined for a long time the

⁽¹⁾Prebendary Rogers, who was a member of the Newcastle Commission (1858-1861) writes in his *Reminiscences* (1887) :—

"Dame Schools were everywhere to be found in the fifties. The teacher was generally an old woman, and the class-room was her kitchen, often close, crowded and dirty."

definition of infants—they were children below standard I. Even in schools where, for reasons of organisation and economical use of space the pupils in standard I were retained in the infant section or group, standard I was still subject to the Code requirements, and it was only later that teachers ventured to apply to children in that standard some of the freer and more appropriate methods of instruction in use in infant classes. Thus, though in a sense the infant school or department was more free to develop than the “graded” school for older pupils, this freedom was within narrow limits, since the children had to be prepared for the standard I examination, and most teachers still held the traditional view that their principal duty was to teach the 3 Rs even to the younger children. It is evident however that the Education Department, even at this period, fully recognised that the training of infants required special methods and qualifications. Thus Paragraph No. 29 of the Instructions to Inspectors for 1862 pointed out that, as the great part of the children in the infant schools would obtain grants without individual examination, and instruction in such schools required above all special methods and qualifications, it was reasonable to bring them, when they exceeded the dimensions of a class, under a general rule whereby principal teachers were required to be certificated.

PART II.—*The Development of Infant Schools and Departments from 1870 to 1905*

(11) Broadly, it may be said that by 1870 infant schools formed part of the core of English primary education, though, as has been shown, the monitorial schools did not originally contemplate introductory departments, since they admitted their pupils at the age of six. Thus when “elementary” schools were being founded in large numbers by voluntary effort throughout the country in the early decades of the last century, the infants were in many cases accommodated in a separate school. Nevertheless, when the State began after 1839 to take cognizance of elementary day schools and to allocate grants, infant departments or classes were already established as natural adjuncts to many such schools. Up to 1870, the general development of infant schools and “elementary” schools with their higher classes, where such existed, had been very uneven and irregular. The passing of the Elementary Education Act of 1870, directed attention for

the first time to the problems involved in providing suitable accommodation for large numbers of children, and School Boards were authorised to frame byelaws making attendance at school compulsory for children between the ages of five and thirteen. This provision was only permissive, and such bye-laws were subject to many exceptions. A plan of school organisation to meet the new conditions was outlined by a Committee appointed by the first London School Board in 1871, under the chairmanship of Prof. T. H. Huxley. This Committee pointed out that public elementary day schools might conveniently be classified into infant schools for children below the age of seven; junior schools for children between the ages of seven and ten; and senior schools for older children.⁽¹⁾ The Committee stressed the importance of schools for children under the age of seven, since in a properly conducted infant school children were not only withdrawn from evil and corrupt influences and disciplined in proper habits, but received such an amount of positive instruction as greatly facilitated their progress in the more advanced schools. They recommended that infant schools should be mixed, and that as a general rule women teachers only should be employed in them. These suggestions were largely incorporated by the London School Board in their Regulations for the Management of Schools.⁽²⁾

This general scheme of organisation for public elementary schools was copied with modifications by various other School Boards, especially those in urban areas, and it became the common practice to provide a distinct department for infants in the larger Board Schools. Thus, one important effect of the Act of 1870 was to make infant departments or schools an integral part of the new system of public elementary schools both in town and country. As a consequence, most

(1) *Minutes of School Board for London*. I, 155–161.

(2) A similar, but more elaborate scheme of organisation for new Board schools in large urban areas was outlined by Dr. Rigg, Principal of Westminster Training College, and a member of the first London School Board, in his book entitled *National Education* (1873). He writes "In the large towns a group or system of schools will most commonly consist of three departments, for infants, for boys, and for girls, but it will sometimes consist only of two, an infants' and a mixed school, while, on the other hand, it will sometimes, especially when the number of children provided for is very large, include four departments, viz., infants, junior mixed, senior boys and senior girls, or even five, viz., infants, junior boys, junior girls, senior boys and senior girls." It is significant that in all these forms of organisation provision is made for a separate department for the infants.

of the dame schools which had survived in large numbers,⁽¹⁾ both in towns and in rural areas, disappeared in the early seventies.

(12) Particular interest attaches to the lower age limit for possible obligatory attendance at school which was fixed at "not less than five" for children in England and Wales by Section 74 of the Elementary Education Act of 1870. Up to 1870, apart from certain educational provisions in the Factory Acts (1833-1867) and in the Mines Act of 1860 which only applied to children working in factories and mines, there was no general legal compulsion on parents to send their children to school. The Education Act of 1870 conferred on the newly established School Boards power to make bye-laws requiring the attendance of children between the ages of five to ten with power to retain them at school to the ages of eleven, twelve or thirteen,⁽²⁾ subject to the provision that such bye-laws must grant exemptions on certain conditions to pupils over the age of ten. The Education Act of 1880 turned this power into a duty. The Reports of the Parliamentary Debates on the Elementary Education Bill of 1870 show that Mr. W. E. Forster was willing at the Committee stage to make six years the minimum, but Mr. Disraeli, the leader of the Opposition, said he "was prepared to support the proposition

1870
empowered

1880
duty

(1) Cf. G. C. T. Bartley, *The Schools for the People* (1871), p. 107 :—

"There is scarcely an alley or court in crowded districts of London or the large towns in which a dame may not be found with her Infants School. Some of a more pretentious character have a card placed in the window, and some are styled 'seminaries' and have a brass plate on the door. By far the larger number have scarcely accommodation for more than half a dozen or a dozen children, though often receiving twice that number. Dame Schools abound also in villages."

(2) It is interesting to note that the Parliamentary Committee on Education (1838) were of opinion that it would be desirable to afford education to the children of the working classes from the age of three to that of thirteen.

Cf. The following passage from the *Report from the Select Committee of the House of Commons, on Education of the Poorer Classes in England and Wales* (1838), p. iv :—

"Your Committee however believe, that as regards the children of the working classes (more especially those residing in large towns) it would be as much as would be desirable, to afford them the means of instruction until the age of 13; but, on the other hand, it would be of the utmost consequence, as respects their future conduct and happiness, and the comfort of their families, that preparatory or infant schools, in populous districts, should be open for the reception of children from the age of three years."

of the Government whether the age was 5 or 6.”⁽¹⁾ In 1872 the Education Department fixed three as the minimum age at which children in attendance at school might count for grant, though children under the age of three might still be admitted to school.

The infant school in England and Wales (and it may be added in Scotland) appears to have no exact parallel elsewhere. Since the early seventies the three year old child in England and Wales has been permitted to attend school where there was sufficient accommodation; when he attains the age of five he is in most areas compelled to attend school. In most European States, in the States and Provinces of the British Dominions and in the United States of North America the obligatory age for attendance at school is six, or even seven. Thus in England and Wales since the passing of the Education Act of 1870 the infant school has formed an integral part of the system of public elementary education, organised in many instances as a relatively independent department with a mistress of its own and offering a distinct course of training and teaching for children below the age of seven. Attention has frequently been called since the early seventies to the unique character of infant education in England and Wales. Thus the Rev. Dr. J. H. Rigg in his *National Education* (1873) writes:—

“ In Germany the infant school system is no part of public education. The school age there begins several years later than in this country. I cannot but regard that as a radical defect. In America, as I have already stated, infant schools are little known. Our English infant-school system is one of our chief educational advantages ” (p. 336).

Again E. R. Robson, Architect to the London School Board in his *School Architecture* (1874) writes:—

“ The Infant Department of a group of English Public Elementary Schools has no real counterpart in other countries . . . Other nations extend a kind of half-recognition to this early species of training, but only in England is it carried on in the same building as one

⁽¹⁾ National Education Union. *A verbatim Report of the debates in Parliament on the Elementary Education Bill, 1870*, pp. 441–442. In the debate at the Committee stage in the House of Lords Lord Shaftesbury proposed that the period for compulsory attendance should be from the age of four to that of ten, *op. cit.* p. 551.

department of a public school and regarded as part—a very important part—of the national educational system.” (p. 180).⁽¹⁾

(13) The Building Regulations issued by the Education Department after 1870, throw much light on the planning and organisation of infant departments in the latter part of the 19th century. The distinction between the infant school or department and the “graded school” with its six standards is accepted as fundamental.⁽²⁾ Rule 6 of *The Rules to be observed in Planning and Fitting Schools* for 1871 states that an infant school should always be on the ground floor, and if exceeding 80 children in number, should have two galleries of equal size and a small group of benches and desks for the occasional use of the elder infants. No infant gallery should hold more than 80 or 90 infants.⁽³⁾

E. R. Robson, in the work already mentioned states on page 191, with reference to the Board Schools in London, that an exercising or marching ground and a playground are both necessary adjuncts to an infant school. “The former should be covered, and if not in communication with the school door should be connected therewith by means of a covered way”. On page 181 of the same work, Robson writes :—

“No Infant School, however small, can be regarded as complete which does not at least provide a separate room for ‘babies’ apart from the general room. . . . The babies’

⁽¹⁾ Cf. F. Clay. *Modern School Buildings, Elementary and Secondary* (1902), p. 224 :—

“The plan of having Infant Schools forming a department of an Elementary School, and regularly found in connection with them, is peculiar to this country.”

⁽²⁾ For instance, Rule 12 of *The Rules to be observed in Planning and Fitting Schools*, issued by the Committee of Council on Education in 1871 and subsequent years, states that infants should never be taught in the same room with older children, as the noise and the training of the infants disturb and injuriously affect the discipline and instruction of the older children. This provision reappears in a more emphatic form in Rule 18 of the *Rules for Planning and Fitting up Public Elementary Schools* for 1904, which runs, “Infants should not, except in very small schools, be taught in the same room with older children, as the methods and instruction suitable for infants necessarily disturb the discipline and instruction of the other scholars. Access to the Infants’ room should never be through the older children’s school-room.”

⁽³⁾ This provision was modified in Rule 17 of the Rules for Planning and Fitting up Public Elementary Schools issued in 1885, which state that, if more than 80 scholars are admitted, one gallery should be provided which should be well lighted from one side. Rule 27 of the Rules for 1871 states that an infants’ school must have a playground attached to it.

room should have direct access to the covered play-ground and latrines without the necessity of passing through the schoolroom.

A pane of clear glass should be provided in the wall of division to enable the Mistress to see how these youngest children are being interested”.

(14) The early history of the Kindergarten is inseparably associated with Friedrich Froebel (1782–1852), and his famous school founded in 1837 at Blankenburg near Keilhau in Thuringia. Comenius had pointed out the educational importance of the first six years of a child's life and had developed the idea of teaching children of five or six “without any tediousness to read and write, as it were in a continual course of play and pastime”⁽¹⁾ Froebel whose ideas were largely derived from Rousseau and Pestalozzi, was the first to endeavour to provide a coherent scheme of infant education based on the nature of the child, with a view to improving and supplementing the training given by the mother and the nurse. He elaborated a system of training through the senses based on organised play for children up to the age of six. His Kindergarten was intended to supplement and widen home training and not to be a substitute for it. His influence on infant education in England was not felt, even indirectly, till the early fifties. Public attention was first directed to his system through a display of Froebelian apparatus and a lecture by Frau Ronge of Hamburg at an Educational Exhibition held at London in 1854 under the auspices of the Royal Society of Arts. The Rev. M. Mitchell, H.M. Inspector, referred to this Exhibition in his General Report for 1854, in which, after condemning much of the work done in contemporary infant schools, he described the Froebelian system as truly infantile, though elaborate. “It treats the child as a child; encourages it to think for itself; teaches it by childish toys and methods gradually to develop in action or hieroglyphic writing its own ideas, to state its own story, and to listen to that of others . . . The grand feature of the system is ‘occupation’. The child is taught little; it simply produces for itself.”⁽²⁾

⁽¹⁾ *Informatorium der Mutterschul*, Leszno, 1633, Chapter IV, §§ 9–12. John Dury, *Motion tending to the publick good, etc.*, London, 1642, p. 21.

⁽²⁾ *Minutes of Committee of Council on Education*, 1854–55, p. 473. In his Report for 1855 Mr. Mitchell states that he had seen the Froebelian system “at work in the infant school of St. Mark's, Lakenham, under an intelligent Mistress.” *Minutes of Committee of Council on Education*, 1855–6, p. 402.

The system received wider publicity from Charles Dickens, who expounded Froebel's ideas in an article in *Household Words* in 1855. In 1860 the system was introduced into the Model School of the Home and Colonial Infant School Society in Grays Inn Road, London. After 1870, the kindergarten movement developed rapidly.⁽¹⁾ The Froebel Society was founded in 1874 and began its examinations in 1876. In 1874 the British and Foreign School Society established a model kindergarten and training department in connection with Stockwell Training College. In 1884 the same Society founded a training college for infant teachers on kindergarten lines at Saffron Walden.

After 1871 several of the newly established School Boards, e.g. London and Croydon, introduced Kindergarten methods into their infant schools. Thus in 1871 the first London School Board included in its regulations for infant schools a provision that instruction should be given in object lessons of a simple character, with some such exercise of the hands and eyes as is given in the ' Kindergarten ' system''.

In 1873 the London School Board appointed an instructor in kindergarten exercises, who in the following year began a system of classes for teachers. In 1875, she was authorised to issue a certificate to each teacher whose personal application of her kindergarten knowledge reached the standard required by the instructor. In 1878 the instructor reported that she had experienced difficulty in trying to secure that the principles of the kindergarten system should be infused as far as possible into the general instruction in infant schools, and that the teachers too frequently looked upon kindergarten as a subject of instruction rather than as a principle to be applied, wherever possible, in every lesson. In 1878, the School Board altered her title to that of " Superintendent of Method in Infant Schools " ; and in 1888 it asked the Froebel Society to suggest an examiner for their training classes. In 1888 the National Froebel Union was founded as an examining body.

The Froebelian apparatus was gradually introduced into infant schools by other School Boards and by managers of Voluntary Schools in the seventies and eighties, but it may be surmised that it was often used in a mechanical way far removed from the true Froebelian method. A Circular to H.M.

⁽¹⁾ Institutions or colleges for training teachers and nursery governesses in Froebelian methods were established by voluntary effort in several towns, e.g. Bedford, Birmingham and Manchester.

Inspectors, issued by the Education Department in 1882, points out that "it is of little service to adopt the gifts and mechanical occupations of the Kindergarten, unless they are so used as to furnish real training in accuracy of hand and eye, in intelligence and in obedience".

In another Circular to Inspectors (6th August, 1883) the Department refers to the provision of "appropriate and varied occupations" for the infants as a requirement for the receipt of merit grant, and states that the exercises usually known as those of the kindergarten may be so used as to fulfil the purpose of this requirement, but are not indispensable.

Article 108 of the Code of 1885 states that infants should be instructed suitably for their age, and in the Code of 1889 this phrase was expanded to read—"suitably to their age and capacity".

(15) Increasing knowledge regarding the mental and physical development, tastes, aptitudes, and interests of very young children, deriving largely from the kindergarten movement described in the preceding section, gradually directed public attention more and more to the need for improved methods in infant education. The influence of these new ideas is reflected in various documents issued by the Education Department in the early nineties. For instance, Sections 5 and 6 of the Revised Instructions to Inspectors (6th February, 1891) mark a distinct advance. Section 5 points out that the infant school contemplates in the length, variety and character of its lessons, the training of scholars whose delicate frames require very careful treatment. "It is essential, therefore, that the length of the lesson should not in any case exceed 30 minutes, and should as a rule last only 20 minutes, and that the lessons should be varied in length according to the section of the school, so that in the babies' room the actual work of the lesson should not be more than a quarter of an hour. Each lesson should also be followed by intervals of rest and song; the subjects of lessons should be varied, beginning in the lowest section with familiar objects and animals, and interspersed with songs and stories appropriate to the lesson; the spontaneous and co-operative activity of the scholars should form the object and animate the spirit of each lesson".⁽¹⁾

⁽¹⁾ This represents a great advance on the ideas previously current, but went further in advising very short lessons than is now recognised as desirable.

An even more important advance was made in 1893, when the Department issued a special Circular to H.M. Inspectors on the Training and Teaching of Infants (Circular No. 322, dated 6th February, 1893). This document, which was re-issued in successive years and finally incorporated almost *verbatim* in the first edition of *Suggestions for the Consideration of Teachers*, issued by the Board of Education in 1905, registers a most important development in official ideas regarding the education of infants. The Circular, after stating that the Department desired to give further encouragement to the employment of kindergarten methods, points out that the circumstances of infant schools had altered considerably in recent years. As the numbers in the lower classes of schools had increased, a full four years' attendance at the infant school would be the rule and not the exception.

“ Two leading principles should be regarded as a sound basis for the education of early childhood :—

- (1) The recognition of the child's spontaneous activity, and the stimulation of this activity in certain well-defined directions by the teachers.
- (2) The harmonious and complete development of the whole of the child's faculties. The teacher should pay especial regard to the love of movement, which can alone secure healthy physical conditions ; to the observant use of the organs of sense, especially those of sight and touch ; and to that eager desire of questioning which intelligent children exhibit. All these should be encouraged under due limitations, and should be developed simultaneously, so that each stage of development may be complete in itself”.

The Circular states that sufficient attention has not been paid to these principles ; indeed, the kindergarten occupations were often “ treated as mere toys or amusing pastimes”, and the intellectual character of the gifts of Froebel was disregarded. The Inspectors are requested to direct the attention of teachers to the chief consideration underlying true methods of infant teaching, viz., the association of one lesson with another through some one leading idea or ideas.⁽¹⁾

⁽¹⁾ In this respect modern opinion and practice have changed, and the Froebelian theory of “ Correlation ” plays a less prominent part in the training of young children.

After entering a warning against mere repetition of the same exercises and lessons, the Circular states that pictures and flowers have been wisely introduced into Infant Schools and have added much to their cheerfulness and attractiveness. "They should be frequently taken down into the class and made the subject of conversation". The children should be encouraged in every way to give expression in their own words to what they know, what they want to know, and what they think. "It will be found that the Elementary Subjects when taught on right methods can be treated with greater variety; Reading becomes a Kindergarten lesson through pictures and word building; Writing becomes a variety of Kindergarten drawing; elementary exercises in Number are associated with many of the Kindergarten occupations". Appended to the Circular are lists of varied occupations for children (a) between the ages of five and seven; (b) between the ages of three and five.

The gradual abandonment from 1890 onwards of payment by results and of individual examination by the Inspectors of pupils in public elementary schools from standard I upwards had indirectly a salutary effect on the teaching in infant schools and departments, which were now no longer to the same extent expected by the head teachers of the "senior" schools to bring their pupils up to a certain minimum standard in the 3 Rs (see section 10 above).

(16) Since the Education Act of 1870 fixed the age for obligatory attendance at school at five, and the Code of 1872 fixed three as the minimum age at which children in attendance at school might count for grant, the ages of three and five have had considerable administrative significance. It has been long customary among teachers to divide infants into two groups:—"younger infants or babies" between the ages of three and five, and "older infants" between the ages of five and seven.⁽¹⁾ This time honoured classification appears in the first edition of the *Suggestions for the Consideration of Teachers* published by the Board of Education in 1905; and has been retained in the latest edition of the *Handbook of Suggestions*

⁽¹⁾ It is interesting to note that Aristotle in his *Politics* divides the period from infancy to the age of 7 into two stages, viz:—(a) from birth to the age of 5; (b) from the age of 5 to that of 7. He says that up to the age of 5 there should be no compulsory study or violent exercises. The period between 5 and 7 should be spent by the young in observation of the lessons which they will be required in future to learn themselves. Serious education should begin at the age of 7. *Politics*, VII, 17 (in Bekker's order of the books), *Aristoteles*, ed. E. Bekker, Berlin (1831), II, p. 1336.

(1927), though the nomenclature has been slightly altered. The stage up to the age of five is now described as the "preliminary or nursery stage", while the second stage, from the age of five to that of about eight, is called the "infant stage".

The following statistics show that since the passing of the Elementary Education Act of 1870, considerable numbers of children below the age of five have been in attendance at public elementary schools :—

Number of children between the ages of three and five in school, as compared with the total number of children between those ages in England and Wales.

1870-1	..	275,608	1,179,228	24·2%
1880-1	..	393,056	1,339,826	29·3%
1890-1	..	458,267	1,377,818	33·2%
1900-1	..	615,607	1,428,597	43·1%
1910-11	..	350,591	1,540,542	22·7%
1920-21	..	175,467	1,147,685	15·3%
1930-31	..	159,335	1,213,000	13·1%

Successive Codes and Instructions to Inspectors from 1871 onwards contain many references to children between the ages of three and five and to baby classes.

The Final Report of the Cross Commission (1888) contains some interesting references to children under the age of five. Mr. Cumin, the Permanent Secretary of the Education Department, told the Commissioners that the Department had no uniform rule in regard to accommodation for these young children.

"What we say is, generally, that you are to consider the children between the ages of three and five as capable of going to school, and capable of bringing a grant; but it does not at all imply that the accommodation in every case is to be supplied for every child between the ages of three and five".

The Rev. T. W. Sharpe, one of the Chief Inspectors, and other witnesses were of opinion that small baby rooms were absolutely necessary in very poor neighbourhoods where the mothers were obliged to work for their living, that the "babies," if they were suitably dealt with, reaped great advantage from being in school, while the elder children were often thereby set free to attend school more regularly.⁽¹⁾

⁽¹⁾ *Final Report of the Commissioners appointed to inquire into the Elementary Education Acts, England and Wales* (C. 5485), 1888, p. 54.

There is no reference to infants in the Recommendations of the Majority Report of this Commission, but the Minority Report states that it is important that there should be ample accommodation for infants, and that the attendance of children under five years of age should be encouraged.⁽¹⁾

The Revised Instructions to Inspectors, issued by the Education Department in February, 1891, which are quoted at the beginning of Section 15 of this chapter, show that the Department was fully alive to the importance of improving school conditions for children under the age of five. The new policy was carried further in the Special Circular to Inspectors on the Training and Teaching of Infants issued in February, 1893, which is summarised in Section 15.⁽²⁾

PART III.—*The Development of Infant Schools and of Separate Nursery Schools from 1905 to the Present Time*

(17) The year 1905 was marked by several important changes in official policy in respect of infant schools, particularly those containing classes for children below the age of five. By the beginning of the present century, the environmental conditions required for the proper physical and mental development of young children were better understood than hitherto, and the problem of the training of children below the age of five was being discussed both by educationists and doctors.⁽³⁾ The educationists pointed out that the public elementary schools were not providing a suitable type of education for children below the age of five, and that in some instances the training given tended to dull the children's minds. The doctors urged that attendance at school below the age of five was prejudicial to health, since it deprived young children of fresh air, exercise, adequate

(1) *ibid.*, p. 247.

(2) The list of varied occupations for children between the ages of three and five appended to the Circular includes games, with and without music, nursery rhymes, picture lessons, paper folding, mosaic with coloured tablets, drawing, matching colours, plaiting paper, threading beads and shells in twos and threes, etc., and arranging pictures of number with cubes.

(3) In 1892 Dr. Francis Warner wrote a Report based on the medical examination of 50,000 pupils in schools of various types. Sir Shirley Murphy and other medical officers of health had repeatedly drawn attention to the incidence of infectious disease in relation to school attendance. Several of the School Boards had medical officers. For instance, the London School Board appointed a school medical officer in 1890; the Bradford School Board appointed a school medical officer in 1893.

freedom of movement, and sleep, at a critical stage in their development.⁽¹⁾ It was also pointed out that epidemics were apt to spread in crowded classrooms for babies.

The new Local Education Authorities set up in place of the School Boards under the Education Act, 1902, looked for some guidance on this important point, and the Board of Education accordingly decided early in 1904 to employ five of the recently appointed Women Inspectors⁽²⁾ to conduct an inquiry regarding the admission of infants to public elementary schools and the curriculum suitable for children under the age of five. The Board published the Reports of these Inspectors in 1905, with an Introductory Memorandum by the Chief Inspector of public elementary schools. The Memorandum states that the Inspectors were agreed that children between the ages of three and five gained no profit intellectually from school instruction, and that the mechanical teaching which they often received dulled their imagination and weakened their power of independent observation.

Though kindergarten teachers are praised in the Reports, kindergarten "occupations" are condemned, as being contrary to the spirit of Froebel, when taught mechanically in large classes. "Kindergarten occupations are often", writes one Inspector, "distinguished by absence of occupation, for in effect it is not education that is offered, nor even instruction in anything but drill, the children being kept idle, silent and still for long intervals, while the teacher inspects the last little act that she has imposed upon the class by word of command".

The Chief Inspector pointed out that the five Women Inspectors were agreed that the best informed teacher was not necessarily the best baby-minder, and he suggested that, though it was desirable that there should be special training for infant teachers, nevertheless two supplementary teachers of good motherly instincts might be as good for 60 babies between the ages of three and five as one clever certificated teacher. He added that in making this suggestion

⁽¹⁾ *The Report of the Inter-Departmental Committee on Physical Deterioration* (1904) called attention to unhygienic conditions in public elementary schools and recommended that systematised medical inspection of all school children should be imposed as a public duty on every local education authority.

⁽²⁾ Women Sub-Inspectors were appointed first in 1896-97, to inspect schools for girls and infants. In 1904 a staff of 11 Women Inspectors was created under the Hon. Maude Lawrence, as Chief Woman Inspector (*Report of the Board of Education for 1904-5*, p. 9).

there was no desire to depreciate the zeal and devotion of infant teachers. They had had unduly large classes of very young children and had thought themselves obliged to show "results". The Chief Inspector concluded by saying that the wider question as to the character which schools for children under five should assume, if indeed any institution for teaching were needed, would require the fullest consideration of the Board of Education and of local education authorities.⁽¹⁾

The Board lost no time in taking appropriate administrative action in the light of this Report.

Article 53 of the Code for 1905 provided that, "where the Local Education Authority have so determined in the case of any school maintained by them, children who are under five years of age may be refused admission to that school". Section 6 of the Prefatory Memorandum to the Code, explaining this Article, states that there was reason to believe that the attendance of children under five was often dangerous to health, and that there was also a mass of evidence pointing to the conclusion that a child who did not attend school before the age of six compared favourably at a later age with a child whose attendance had begun at an earlier age. On the other hand, parents in certain areas doubtless desired that their children should attend school shortly after, or even before, the age of five. It devolved on the local education authority to take account of the wishes of parents in this matter and to deal on their own responsibility as to admitting or excluding children under the age of five.⁽²⁾

The Code for 1905 also contains important new Articles bearing on the whole field of infant education up to the age of seven or eight.

Article 1 gives (for the first time) a clear outline of the curriculum for infants, largely based on Circular 322, issued in 1893.

⁽¹⁾ *Reports on children under 5 years of age in Public Elementary Schools* by Women Inspectors of the Board of Education (1905), Cmd. 2726, pp. I-III and *passim*.

⁽²⁾ The marked fall in the number of children below the age of five in public elementary schools during the first decade of the present century (see the decennial statistics quoted in § 16) was doubtless accelerated by the action of various local education authorities in excluding children below the age of five under Article 53 of the Code for 1905.

In 1900-1 there were 615,607 children between the ages of 3 and 5 in Public Elementary Schools.

In 1904-5 the number of such children had fallen to 583,268.

In 1905-6 the number again dropped to 497,643.

The principal aim of the infant school should be to provide opportunities for free development of the children's bodies and minds, and for the formation of habits of obedience and attention. (a) Physical exercises should take the form of games involving free movement, rather than of set drill; (b) the youngest infants should be encouraged to employ their eyes, hands and fingers in suitable free occupations, and the teacher, by talking with the children and encouraging them to ask questions, should lead them to form ideas and express them in simple language of their own; (c) for the older children these exercises should be supplemented by short lessons in which the children are trained to listen carefully, to speak clearly, and to reproduce simple stories and narratives, to do things with their hands, to begin to draw, to read, and to write, to observe, to acquire an elementary knowledge of number, to practise suitable songs and sing suitable musical intervals; (d) knitting may be practised by children under the age of six, but they need not learn to sew; and with the Board's permission sewing may also be omitted for children between the ages of six and seven. Section 7 of the Prefatory Memorandum to the Code for 1905 explains that Article 1, dealing wholly with infants, was inserted because in some cases the attention of infant teachers had been concentrated on efforts to secure that a fixed standard in the 3 Rs should be reached by the age of 7.⁽¹⁾

In 1905 the Board also issued for the first time a volume of *Suggestions for the Consideration of Teachers* in which was incorporated the gist of Circular 322 on the instruction of infants (6th February, 1893).

(18) The English Nursery School in its present form is an indigenous growth, though it offers certain points of resemblance to institutions for the care and training of very young

⁽¹⁾ The old distinction between "infants" and "older scholars" survives in the official statistics down to the passing of the Education Act of 1918. For instance, an Explanatory Note on the term "Department" on page 149 of the *Statistics of Public Education in England for 1912-13* states that a department is a portion of a school which normally has a head teacher. "Departments for Infants only may be taken to be Departments for younger scholars between the ages of 3 and about 9." Other departments are described as "Departments for Older Scholars with or without Infants". It should, however, be pointed out that the terms "infants" and "older scholars" in official language in the early years of the present century refer primarily to the classification of children for purposes of payment of grants and not to classification for purposes of instruction. On page 30 of the Report of the Board of Education for 1903-4 it is stated that the ordinary age for promotion from the infants department or class was between seven and eight, but that there had been a steady tendency to lower this age.

children that have been developed in France, Germany, the Swiss Cantons, and elsewhere on the Continent, such as Day Nurseries (*Crèches*),⁽¹⁾ Kindergartens and *Bewahranstalten*, *écoles maternelles* and *écoles gardiennes*. In this country the nursery school was gradually evolved from the free kindergartens for poor children established by philanthropic effort in London, Manchester, and other large towns during the last three decades of the 19th century. These institutions were designed to take children from very poor homes into an environment that would render possible the development of the child's whole personality; they had from their inception to devote special attention to the physical care of their pupils, and in some instances provided meals and baths. The best known example was the Free Kindergarten founded by Sir William Mather at Salford in 1873, which provided meals and baths for the infants and may justly be regarded as the first nursery school in England.

Sir William Mather, writing in 1920, gave a short account of the origins of this school.⁽²⁾ In the early seventies when many of the children in infant schools in Salford were noticeably underfed, he formed the idea of building a special institution for training infants on "kindergarten" lines, with arrangements for feeding and clothing them during school hours and with adequate provision for rest and play. "We bought a lot of wretched cottages in a slum and cleared a large space on which we built the Queen Street Institute, opened by Bishop Fraser in 1873 (since known as the William Mather Institute), replete with kitchen, baths, resting-rooms, etc., and two large schoolrooms capable of accommodating 500 children, and dividing them into classes from infants of two years old upwards to six or seven years, when they were to enter the School Board Elementary Schools. We engaged a

(1) The first *crèche* (founded by M. Firmin Marbeau) was opened in Paris on 14 November, 1844.

(2) *Life of Sir William Mather (1838-1920)*, edited by his son Loris Emerson Mather, London (1925), pp. 93-94.

It should be mentioned that Sir William Mather was one of the founders, about 1883, of the Salford Day Nursery, which carried on the Nursery part of the work of the Salford Free Kindergarten. It was housed in a building at Greengate, in which a Dispensary had been carried on as from 1876. With Sir William Mather's help, the Salford Day Nursery was incorporated in 1902 with the Greengate Dispensary, and a teacher was employed in order to establish the Greengate Open Air Residential School and Hospital for the treatment of rickets and debility among town children under school age, under the care of Dr. A. Brown and Dr. A. Mumford. This was one of the earliest Open Air Schools for city children in England.

German *Kindergärtnerin* from Berlin, an exceptionally capable teacher of fine character who, with English assistants and a committee of lady friends, succeeded in making a great success of our school for many years."

In the later years of the 19th century a parallel movement for the foundation of free kindergartens was rapidly developing in the United States ; ⁽¹⁾ in 1900 under the influence of this movement a Free Kindergarten was established at Woolwich by Miss Adelaide Wragge, the Principal of the Blackheath Kindergarten Training College. Free kindergartens on similar lines were founded in several of the large towns. ⁽²⁾ They aimed at providing healthy environment, right mental occupation, free activities, training in good habits, and social intercourse, i.e. close co-operation with the parents. Several existing nursery schools have been developed without a break from these free kindergartens, having changed their name from kindergarten to nursery school when State grants for such schools became available in 1919.

(19) In April, 1907, the Board of Education gave the Consultative Committee the following Reference :—

"To consider and advise the Board of Education in regard to the desirability, or otherwise, both on educational and other grounds, of discouraging the attendance at school of children under the age of (say) five years, on the assumption that, in the event of the change being found generally desirable, the moneys now payable by the Board of Education in the shape of grants in respect of the attendance of such children, should still be payable to Local Education Authorities, in greater relief of their expenditure in educating the children over five years of age."

The Committee collected a large body of evidence on the provision made in Belgium, France, Germany and Switzerland, for the training and education of children under the compulsory school age. In their Report published in the latter part of 1908, the Committee state that "the practical issue was whether any children under the age of 5 should attend school,

⁽¹⁾ Board of Education, *Special Reports on Educational Subjects*, Vol. 10 (1901), pp. 182-196.

⁽²⁾ Several free kindergartens of this type were established by private effort in Scotland, e.g. Reid's Court Free Kindergarten at Edinburgh, founded in 1903, which is still in existence.

and, if so, what kind of school".⁽¹⁾ The ideal system of home education for very young children was far from being universally obtainable in England and Wales. "The condition of English working class life must be taken as it is found. It would be fatal to ignore this and to insist prematurely on the general adoption of a system which, however, desirable in theory, is suited only to those parts of the community where the industrial and social conditions are in an unusually advanced state. In most districts the improvement of those conditions, and the improvement of public policy in respect of the education of younger infants must go hand in hand."

"The work and influence of good nursery schools,⁽²⁾ combined with improvements in the course of education provided for older girls, will do much to foster a truer and better tradition of home life, which in turn will enable Education Authorities to leave the education of these young children more and more to their parents. . . . For the present the Committee consider that nursery schools are in many cases a practical necessity. They believe that great advantages may be secured by their proper use, and that any effect that may be directed to this end will be amply repaid in the improved healthiness, intelligence, and happiness of future generations."

In discussing the lower limit for voluntary and compulsory attendance at school, the Committee expressed the view that

⁽¹⁾ In Appendix 5 to their *Report upon the School attendance of children below the age of five* (1908) the Consultative Committee gave tables showing the attitude of the various local education authorities in England and Wales towards the school attendance of children under five. 322 out of the total number of 327 Authorities supplied information. 154 of these 322 Authorities retained all children under five; 74 partially excluded children below five on grounds of lack of accommodation or to effect reduction of staff; 62 partially excluded children below the age of five for other reasons, e.g. admitting them at the age of four rather than five; 32 wholly excluded children under five.

⁽²⁾ The Committee defined "nursery school" on page 19 of their *Report upon the school attendance of children below the age of 5* (1908) as follows:—

"As a general name for schools where the special needs of small children are met by the provision of special rooms, special curriculum, and special teaching the Committee would adopt the term 'Nursery School'. Under this heading the Committee would include alike those Public Elementary Schools, the number of which they are glad to believe is increasing, which at present contain properly organised classes for younger infants (commonly called 'Babies' Classes' and 'Babies' rooms'), and also any other institutions where the arrangements for the younger infants approximate to those of the Kindergarten or Day Nursery."

It will be observed that the connotation of the term "nursery school" was still in 1908 rather vague.

the majority of children for whom provision was to be made at all were sufficiently developed at three years of age to attend a nursery school, and that at least the option of attending at that age should be given. The Committee considered that it would not be wise to raise the existing lower limit of compulsory attendance.

In their detailed Recommendations the Committee endorsed the view embodied in the Code for 1905 and in *Suggestions for the Consideration of Teachers* (1905), that children under the age of five should not be subjected to any mental pressure or undue physical discipline, and that freedom of movement, constant change of occupation, frequent visits to the playground, and opportunities for sleep, were essential. The Committee recommended a reduction in the size of classes for pupils under the age of five and the employment (in addition to the teachers) of nurse-attendants or "school-helps" but only for the purpose of attending to the general physical needs of these young children. The Committee stress the importance of selecting suitable teachers. "The best teacher will be one who has made a careful study of the physical and mental development of childhood, and who has a sympathetic and motherly instinct and a bright and vigorous personality."

(20) No legal or administrative action was taken to carry out the suggestions made in this Report till the passing of the Education Act of 1918 (see §22 below). No State grants were payable till 1919 in respect of nursery schools, though grants were available for day nurseries as from 1914. Nevertheless, a few nursery schools were established by private enterprise, chiefly in the large towns. The most famous of these was the school at Deptford, founded by Rachel and Margaret McMillan in 1911. In this school, which has to a great extent served as a model for other nursery schools, the buildings, in the form of low shelters, are grouped round a garden, and the children are trained under open-air conditions.⁽¹⁾

Another early nursery school was that established in 1915 in a very poor district at Ardwick, by a private committee of Manchester citizens. This school, which is still in existence, was at first housed in two small cottages thrown into one. In course of time adjoining cottages were taken and convenient structural improvements made, so that the school has the use of two rooms running back to front, together with

⁽¹⁾ See the description of this school in Appendix IV. p. 254.

two small cloakrooms, an additional entrance room, and a small room, all on the ground floor. The back yards of the cottages have been converted into an open space for play and sleep.⁽¹⁾

From about 1905 great improvements began to be effected in the general planning and construction of school buildings, including those for infants. The establishment under the Education Act of 1902 of local education authorities responsible for schools over large areas, and the subsequent appointment of salaried school architects and school medical officers (particularly after the institution of medical inspection of children in public elementary schools under Section 13(1)(b) of the Education (Administrative Provisions) Act of 1907), soon led to the systematic consideration of problems of hygienic conditions in schools. Under medical influence the idea of "open-air" schools rapidly gained ground, and a number of special schools of this type were built for ailing and delicate children after 1905.⁽²⁾ A completely open-air school is generally understood as meaning a building that opens fully on at least two sides to a verandah. In view of the satisfactory results obtained in these remedial open-air schools,⁽³⁾ the "open air" principle was soon applied, with suitable modifications, in designing new public elementary schools for infants.

Another influence that directed public opinion to the importance of attending to the physical welfare and general training of children under the age of five was the institution in 1908 of systematic medical inspection of children in public elementary schools.⁽⁴⁾

(¹) This description of the Ardwick Nursery School is taken from a memorandum prepared for the Consultative Committee by Miss Kate L. Steel, the Superintendent and Headmistress of the school.

(²) See the sections on open-air education, on pages 221-232 of the *Annual Report for 1910 of the Chief Medical Officer of the Board of Education* (Cd. 5925); on pp. 210-224 of his Report for 1911 (Cd. 6530), and on pp. 256-270 of his Report for 1912 (Cd. 7184).

(³) Cf. the Annual Report for 1912 of the Chief Medical Officer of the Board of Education (Cd. 7184), p. 256 :—

"The method of the 'Open-Air' School is of the nature of a process. It comprises both a way of life and a system both of education and medical treatment."

(⁴) Under Section 13 (1) (b) of the Education (Administrative Provisions) Act of 1907, and of Section 122 of the Children Act of 1908 (Cleansing of Verminous children), which imposed a duty on children to submit to medical examination and on parents to co-operate in this matter.

The local education authorities appointed salaried medical officers for this purpose, and a special Medical Branch was established at the Board of Education under Sir George Newman as Chief Medical Officer. Sir George Newman's Annual Reports, which began to appear from 1908, revealed for the first time in their entirety the facts regarding physical defects in children entering school at the age of five.⁽¹⁾ It was soon found that about 40 per cent. of the entrants required medical attention at the very beginning of their school career, and many medical officers declared that many of these physical defects were not inevitable, but were the result of ignorance and neglect.

Some attempt was made before the War to cope with this problem by local authorities and by voluntary organisations by the establishment of schools for mothers, baby clinics, and day nurseries (*crèches*). The Board of Education exercised a general supervision over these institutions up to 1919. By Section 3(1)(c) of the Ministry of Health Act, 1919, "all the powers of the Board of Education with respect to attending to the health of expectant mothers and nursing mothers, and of children who have not attained the age of five years and are not in attendance at schools recognised by the Board of Education" were transferred to the Ministry of Health. In this context, it should be mentioned that since 1919 much has been done to cope with this problem by the establishment of maternity and child welfare centres, to which the mothers often continue to take their children up to the age of one or even later.

(21) Another influence which has profoundly affected infant education in England and Wales since about 1900 is the increasing recognition of the biological conception of life deriving ultimately from Darwin and his successors. This has to some extent afforded a scientific foundation for many of the educational theories of Rousseau, Pestalozzi, Stow, Froebel and the Mayos, which were primarily philosophical rather than scientific in origin and method. Incidentally child study has tended to become more and more genetic

⁽¹⁾ Cf. See following passage from Sir George Newman's Annual Reports for 1911 (Cd. 6530), p. 321 :—

"Previous to the commencement of school life children are subject to no medical control or supervision. Yet it is during the first years of life that diseases are often acquired—diseases which might frequently be avoided by the use of common hygienic precautions, but which, if contracted, are liable, if they do not prove fatal, to cause permanent injury to the constitution."

in character, and has laid increasing emphasis on the continuity of growth in the human being as an organism, and at the same time upon the qualitative changes involved. The most prominent exponent of this newer biological conception of the educative process is Professor John Dewey, who in addition to emphasising the idea of the organic development of the individual child, has assigned a prominent place to the sociological factors which should influence and guide the direction of his growth.

Professor Dewey, born in 1859, was appointed Professor of Philosophy and Pedagogy in the newly founded University of Chicago in 1894. His best-known educational work, entitled *The School and Society*, was published at Chicago in 1899, and immediately attracted attention in England. As a careful student of children's behaviour, he was impressed by the directness of the child's outlook on life. He accordingly insisted on the importance of allowing young children to observe the world around them, and to learn by unorganised experience. He specially stressed the importance of handwork, which had genuine significance for the children, and the desirability of allowing them to experiment with primitive materials, so far as possible, under primitive conditions. In 1906, Dr. J. J. Findlay, Professor of Education at the University of Manchester, published a collection of Dewey's essays under the title *The Child and the Curriculum*. One of the principal thoughts underlying these essays is "learning by doing". The idea of the "problem" or "project", which has had such a wide vogue in educational circles in America, may be traced largely to Dewey's influence. Incidentally, he showed the futility of over-emphasising the idea of "correlation", substituting for it the conception of the unity of the child's actual experiences. Dewey's works were extensively studied by teachers of young children and by students in training, and have played an important part in the evolution of modern ideas on infant education in this country.

The doctrines and method of Dr. Maria Montessori have since about 1910 had an important indirect influence on infant education in England, particularly on the training of very young children. Madame Montessori, like Dewey, bases her theory largely on biological principles, but her interest in medical science led her to prescribe a course of training in a prepared environment rather than to explore ways and means of permitting children to acquire their own experience in a social environment. In her book on education entitled *The*

Montessori Method,⁽¹⁾ which appeared in an English translation in 1912, she laid great stress on the importance of allowing little children to develop naturally, but within a carefully prepared environment.

Her apparatus for sense-training and for developing elementary ideas of number and form was largely based on the various models (e.g. the wooden insets), devised for defective children by Edouard Séguin (1812–1888). She intended this apparatus to be used by the children themselves, the teacher only supplying guidance when required.

She stressed the importance of providing furniture and equipment of sizes appropriate for small children at successive ages. The “Montessori Method”, though suggestive in many respects, is hardly suitable for application in its entirety in the infant schools of this country. Her methods, like those of Froebel and the Herbartians, tend to crystallise into a system. Much of her apparatus is well adapted to develop capacity for exact observation in number and form: but little provision is made for the development of the young child’s free imagination, or for his wider interests in the activities of the adult world. The Montessori Method has affected many infant teachers in this country. Its influence may be seen:—(a) in the growing tendency to make provision for individual occupation with the minimum of intervention on the part of the teacher; (b) in the emphasis on equipment of appropriate size (e.g. small basins, brooms, low cupboards), and the encouragement given to the children to handle and use everything about them with independence and initiative; (c) in the introduction of appropriate apparatus for sense training; and (d) in a growing scientific attitude towards the general care of mind and body, and renewed emphasis on self education.

It will be seen from this brief outline of the views and influence of Professor Dewey and Madame Montessori that both have justly emphasised the need for securing the active co-operation of the individual child in his own mental development on biological lines. Both afford scope for the natural “urge” of the young child, while recognising, but not over-emphasising his powers of memory, as many of the older writers on infant education were somewhat prone to do.

⁽¹⁾ *Il Metodo della pedagogia scientifica applicato all'educazione infantile nelle case dei bambini.* Rome, 1913.

The English translation by Anne E. George, published in 1912 in New York and London, is entitled *The Montessori Method*.

(22) Legislative power to supply or aid the supply of nursery schools was granted for the first time to local education authorities by the Education Act of 1918. Section 19 of that statute, as re-enacted in Section 21 of the Education Act, 1921, runs:—"The powers of a local education authority for elementary education shall include power to make arrangements for

"(a) supplying or aiding the supply of nursery schools (which expression shall include nursery classes) ⁽¹⁾ for children over two and under five years of age, or such later age as may be approved by the Board of Education, whose attendance at such a School is necessary or desirable for their healthy, physical, and mental development; and

(b) attending to the health, nourishment, and physical welfare of children attending Nursery Schools."

Thus the existing legislative provisions regarding nursery schools impose no obligation on parents to send their children to them, and nursery schools do not rank as public elementary schools within the meaning of the Education Acts. It will be noted that Section 21 of the Education Act, 1921, appears to delimit the type of children for whom provision may properly be made in a nursery school to those whose attendance at such a school is "necessary or desirable for their healthy, physical, and mental development". In practice, nursery schools recognised up to the present for grant have only been provided in crowded urban areas where housing conditions are unsatisfactory.

In March, 1919, the Board issued Regulations for Nursery Schools, with a lengthy Prefatory Memorandum indicating the conditions under which they were prepared to recognise such schools and pay grants in aid. During the year ended 31st March, 1919, 13 nursery schools were recognised for grant, most of which were voluntary institutions established before the passing of the Education Act of 1918. Partly owing to the high standard laid down in the Board's Regulations of 1919, and partly because local education authorities were absorbed in the exercise of the new statutory duties

⁽¹⁾ As regards the expression "Nursery Class" employed in Section 21 of the Education Act, 1921, quoted above, it should be mentioned that up to the present no "nursery class" has been recognised for grant under the Board's Special Regulations for Nursery Schools. The nursery classes organised during the last few years in Manchester, Leicester, and other urban areas, are treated as integral parts of the public elementary schools for infants in which they have been organised, and grant is paid in respect of them under the public elementary school Code.

imposed upon them by the Education Act of 1918, the progress made in the provision of nursery schools was slow. Contributions for voluntary nursery schools were not easily raised. The cost of building was high, and difficulties were experienced in obtaining suitable existing premises. The necessity for national economy, which became apparent in the autumn of 1920, was strongly emphasised by the Board in Circular 1190 issued in January, 1921,⁽¹⁾ and the restrictions on expenditure imposed by that Circular remained in force till 1924. In March of that year the President of the Board of Education announced in the House of Commons that he was prepared to consider sympathetically any proposals for the establishment of new Nursery Schools in suitable places.⁽²⁾ In 1925 the Board of Education issued a new and simplified set of Regulations for Nursery Schools, which are still in force, and are printed as Chapter VIII of the Board's Special Services Regulations. These provide that no child may be admitted to a nursery school before attaining the age of two, or (except with the Board's consent) retained therein after the end of the term in which he completes five years of age. Sufficient opportunity for rest, meals, and recreation, must be provided, and adequate arrangements must be made for attending to the health, nourishment and physical well-being of the children. No charge may be made, except for food and medical treatment. Nevertheless, very few new nursery schools were established. Apart from the cost of staffing nursery schools, one main reason for their slow development has been the comparatively heavy capital cost, which was largely due to the limitation of numbers recommended by the Board in 1919, in order to ensure individual attention and reduce the danger of the spread of infectious diseases.

In the light of further experience the Board stated in 1928 that subject to their being satisfied as to the accommodation and equipment, the provision of open-air facilities, and the general conditions of supervision, they were prepared to consider proposals for nursery schools containing from 150 to 200 children.

On 5th December, 1929 the Ministry of Health and the Board of Education issued a joint Circular on children under

⁽¹⁾ Paragraph 10 on page 4 of Circular 1190 runs as follows:—
“*Nursery Schools.* The Board cannot for the present entertain proposals for the establishment of Nursery Schools except in special circumstances and on an experimental basis, where existing buildings are available.”

⁽²⁾ The Nursery School Association, with Miss Margaret McMillan as its first President, was founded in 1923.

school age to maternity and child welfare authorities and local education authorities.

The Circular pointed out that the purpose of a nursery school was to provide for the healthy physical and mental development of children over two and under five years of age. The purpose was thus twofold—"nurture" and education. In congested districts there were many children who, owing to home circumstances and environment, had everything to gain from the continuous care and attention which a nursery school would provide.

In the same Circular the Board, discussing the training of children under the age of five, stated that in planning new infant schools the desirability of including provision for children between the ages of three and five should be carefully considered. In respect of the character of such provision, the nursery school would remain the model, but the extent to which the accommodation approximated to this model, might be affected by the character of the district to be served and the presence or absence of nursery schools. The accommodation should be on open-air lines with as much free space as possible, and the lavatory and sanitary provision should be adapted to the children's ages, with an abundant supply of cold and wherever possible hot water.

The Circular concluded by pointing out that one of the advantages of the admission of children under five to public elementary schools was that it brought them within the scope of the school medical service.

The establishment of separate nursery schools, which had been very slow up to 1929, was checked by the measures of economy necessitated by the financial crisis in the autumn of 1931.

Meanwhile, however, much has been done during the last decade to better the conditions in baby classes for children below the age of five in public elementary schools.⁽¹⁾ The

⁽¹⁾ This improvement in methods of training and teaching in infant schools was undoubtedly largely due to the influence of the training colleges.

The Courses of Study on the Principles of Teaching set out in Appendix C on page 36 of the *Regulations for the Training of Teachers and for the Examination of students in Training Colleges*, 1904, indicate that the Board attached importance to a certain amount of special training for teachers employed in infant schools. In the Regulations for the Training of Teachers for 1907, this aspect of training is dealt with in the Syllabus (page 38) in greater detail. A more comprehensive view of the training and teaching of children in the infants and lower classes of the "Upper School" is contained in the Regulations for 1911 (pages 74-75).

methods of training employed in these classes have been greatly improved by the zealous efforts of the teachers under influences deriving from the kindergarten, Professor Dewey, Madame Montessori, and the nursery school movement.⁽¹⁾ In many instances, the classrooms for the younger infants have been greatly improved by increasing the facilities for sunlight and ventilation, and by providing small chairs and tables for the children in place of desks. In some instances beds have also been provided. Within the last few years, several urban local education authorities, notably Manchester and Leicester, have taken steps to convert the classes for children below the age of five in a number of the infant schools in their respective areas into nursery classes. In these nursery classes, which are described more fully in chapter V and appendix IV of this Report, most of the amenities of nursery schools are provided, so far as local conditions permit. In particular, the teachers are assisted by student nurses, and beds are provided for all the children under the age of five. Thus it may be said that the nursery school movement, like the "kindergarten" and other movements in infant education, has exercised a profound indirect influence in improving the conditions under which children below the age of five are trained in public elementary schools.

(23) The following official statistics, all of which relate to 31 March, 1932, serve to give some general idea of the existing provision for infants in England and Wales in public elementary schools and in separate nursery schools :—

There were on 31 March, 1932 approximately 1,189,000 children in England and Wales between the ages of 3 and 5, and 1,891,000 children between the ages of 5 and 8. 157,551 children out of the total number of 1,189,000, or approximately 13·2 per cent., between the ages of 3 and 5 were attending elementary schools.⁽²⁾ 120,918 children between the ages of 3 and 5 were accommodated in departments classified in the official statistics as "infants departments"; 35,877 children between the ages of 3 and 5 were accommodated in other types of department, e.g. in junior mixed departments and in small "all-age" schools taking children between the

(1) The valuable and suggestive experiments in the training of young children conducted by the late Dr. Ovide Decroly at Brussels have been followed with interest in England and have had some influence on the teaching in infant schools. See *La Méthode Decroly*, par Amélie Hamäide, Neuchâtel, 1922.

(2) In the public elementary schools in the areas of 37 local education authorities there were no children below the age of 5 on 31st March, 1932.

ages of 3 and 14.⁽¹⁾ There were on 31 March, 1932 6,404 separate departments classified as "infants' departments."

On 31 March, 1932 there were 55 nursery schools recognised by the Board of Education, 30 of which were provided by local education authorities, and 25 by voluntary bodies. These 55 nursery schools afforded accommodation for 4,520 pupils, and the average number on the registers was 3,768.

Of the 1,891,000 children between the ages of 5 and 8, 1,678,473 were attending elementary schools of various types. The number of children in the age groups 5-6, 6-7 and 7-8 who were accommodated in schools and departments classified as "infants' departments", was 1,001,113.

(24) We think that the following salient facts emerge clearly from this brief sketch of the historical development of infant schools in England and Wales :—

- (i) In the evolution of educational theory and practice since the beginning of the last century, the conception of the infant school as distinct from the elementary day school was present from the beginning of the movement for making educational provision on a large scale for the children of the poorer classes. Furthermore, the infant school was based on a richer and fuller educational tradition than that of the contemporary monitorial day schools. (§§ 1-10.)
- (ii) By 1870 the value and significance of separate infant schools or of infant classes within the elementary day schools were generally recognised, and the adoption of the age of five as the lower limit for obligatory attendance at public elementary schools in the Elementary Education Act of 1870 made the infant school or department an integral part of the system of public elementary schools in England and Wales. (§§ 11-16.)
- (iii) Since the early seventies a varying proportion of children under the age of five has been admitted to the infant departments of public elementary schools in which provision has been made for them in the form of baby classes, and since 1872 children above the age of three have been eligible for grant. Within the last few years, several authorities have taken steps to convert some of these baby classes into nursery classes by providing a large number of the amenities usually found in separate nursery schools. (§§ 17-23.)

⁽¹⁾ 20,208 children under the age of 5 were attending public elementary schools in rural parts of the county areas in England and Wales on 31st March, 1932.

CHAPTER II

THE PHYSICAL DEVELOPMENT OF CHILDREN
UP TO THE AGE OF SEVEN

(25) There is a large body of traditional opinion about the physical and mental development of infants and young children up to the age of seven. These views represent the garnered experience and observations of successive generations of parents, nurses, teachers, inspectors and administrators. Of late years, however, there has been much systematic study of children in the earliest years of life, and in consequence the accuracy of many of the older notions about the growth, habits and capabilities of young children has been called in question by scientific investigators—both physiologists and psychologists. We accordingly regard it as important for the purpose of our present inquiry to summarise such knowledge as is available regarding the anatomy and physiology of growth, and the general mental development of young children.

Teachers, parents and nurses will appreciate the significance of the inferences that may reasonably be drawn from the summary of the basic facts of bodily and mental development which is attempted in this and the following chapter, and we believe that the necessity of recognising adequately the general characteristics of young children during this early stage of their development will justify a close study of such physiological and psychological evidence as is available.

THE GENERAL CHARACTERISTICS OF EARLY
CHILDHOOD

(26) Childhood is the period of life most abounding in problems for the parent, the physician, and the teacher. Too often at present parents are overwhelmed by the responsibilities of their problems, confused by the experience of other parents, and unable to appreciate the extent to which their children are influenced by the example of other children, rather than by the precepts of parents. The physician or surgeon is often at a loss since he is asked to treat abnormalities or disorders of growth before he is thoroughly versed in its

normal features.⁽¹⁾ The school teacher often knows little of the interaction between physical growth, health, and intellectual and emotional performance. In the section (33) on the growth curve, an attempt is made to give a brief sketch of the salient characteristics of growth in children, but as is pointed out in that section, the representation of the process of growth by a mathematical curve is only partially accurate, and for this reason an attempt must be made to indicate in greater detail the complexity of the process of growth in young children, and to emphasise the extensive gaps in our present knowledge.

The results of aberrations in growth in young children are at least as manifest as the results of errors in social adjustment. The causes of such aberrations are more easily ascertainable, and steps can more easily be taken to obviate them.

The processes of growth which operate in the human organism are more numerous, more delicately balanced, and more rapid during early childhood than at any other period of life.

GROWTH

(27) Growth in the true sense of the term implies far more than mere change in form and size. It includes that gradual development from the embryo to old age which involves the acquisition of new functions and fresh responses to the environment by the unfolding of new patterns of behaviour. The mere morphogenetic aspect of growth which was so carefully studied by the older anatomists is inadequate, and in order more completely to understand growth a place must be found for concepts which are on the one hand frankly physical, chemical or biological, and on the other hand psychological. Our real interest in young children is not determined by their anatomical structure, but by their changing activity and behaviour as they pass from one stage of development to another. The rate of change, and the variation in the rate of change from child to child must also be carefully observed and studied. A process so vast and yet so self-contained as growth in the young child cannot be adequately analysed by mere studies, however carefully made, of form, height and weight. It is exceedingly difficult to make a quantitative

⁽¹⁾ e.g., the development in radiology was so rapid that acquaintance with abnormalities in the skeletal system was often acquired by young doctors in the hospital before its normal development could be adequately studied.

estimate of the changing form of a child, and an appreciation of the general characteristics of an individual child is probably of more use than the record of a large number of *indices* such as those presented in the mass statistics of anthropometrical reports. It must, however, be pointed out that the capacity for remembering and presenting the general characteristics of individual children is poorly developed in the average parent, teacher and doctor. Few parents or teachers can give a coherent account of the particular growth and characteristics of behaviour of any given child in earlier years, say from the age of two to that of seven. Both the anatomist and anthropologist have failed to explain the essential phenomena of growth. Biochemistry has added considerably to our knowledge; genetics may add much; further study of the effect of environment on physical aspects of growth may prove fertile of results.

THE INFLUENCE OF ENVIRONMENT ON GROWTH

(28) It is necessary to consider briefly the manner in which growing organisms, whether animals or plants, react to the conditions of their surroundings. The rate of growth is most intense and most rapid in the earliest stages of development. For instance, the human embryo (*ovum*) two weeks after fertilisation doubles its weight within the third week; the embryo three months after the beginning of gestation doubles its weight within the fourth month. The new born child takes six months to double and a year to treble its birth-weight.

External conditions do not act with equal intensity at all stages in the growth of a developing organism, but the effect of environment is more noticeable at the period when growth is more active. It would appear to be a law of general application that the permanent effect of environment on the growth of a developing organism diminishes rapidly and regularly from the time of fertilisation onwards.

The extent to which a retardation or acceleration of growth induced at any particular stage of development may persist throughout childhood is difficult to assess. Such an effect, produced in the earliest stages, may be wholly rectified by a subsequent variation in the rate of growth. The fact that variability in height and weight decreases with growth, indicates that there is a definite tendency for earlier irregularities to be eliminated. The health of the mother during

pregnancy and of the child during its early years are reflected in the physique, constitution and health of the child in later years.

SLOWNESS OF GROWTH IN MAN

(29) The growth curve in most domestic animals shows a gradual decrease in the rate of growth from birth to maturity with no stages of relative retardation or acceleration. The loss of weight in the human baby shortly after birth, ranging from 5 to even 10 per cent. of its weight at birth, does not occur in the domestic animals. The curves for domestic animals exhibit a process of growth with a rapid passage from babyhood through childhood to puberty. Most domestic animals reach puberty at a time when their bodily weight is roughly one-third of their weight at maturity. Man, on the other hand, has a long drawn out period of childhood, with seven or eight years intervening between the stages of commencement of the second dentition and the onset of puberty. At puberty the boy or girl has attained roughly two-thirds of the adult weight. Except so far as the growth curve in man may resemble the growth curves of anthropoids, about which the available information is very meagre, it is wholly distinct from the growth curve in all other animals. It would, therefore, seem that arguments about growth in children based on analogies drawn from the lower animals are apt to be fallacious.

THE FOUR MAIN ASPECTS OR TYPES OF GROWTH⁽¹⁾

(30) There are at least four clearly defined aspects or types of growth in the human organism, the skeletal, the neural, the lymphoid, and the genital. On the other hand it must be emphasized that these four types, aspects or systems of growth are at best only imperfect representations of the complexity of the processes actually involved.

The skeletal type.—Skeletal development, which may be represented graphically as a growth curve, related only to modifications in height and weight, cannot be regarded as an adequate representation of the profound changes that take place at successive stages in the development of any given child. Almost every external linear dimension of the

⁽¹⁾ A more detailed treatment of these aspects of growth will be found in Chapter II and Appendix II of our Report on *The Primary School* (1931).

body, except the head and neck, falls under this type of growth. The skeleton as a whole, the length of the limbs, the development of the thoracic cage, of the respiratory apparatus and of the muscular system, present this general type of skeletal growth.

The neural type.—The brain, the spinal cord, the eye-ball and the skull display a peculiar type of growth that may be described as neural. During the first eighteen months of post-natal life these organs develop with great rapidity. When the infant has reached the age of two, his brain has attained 60 per cent. of its adult size, and by the age of seven it has almost reached adult size.

The lymphoid type.—The lymphoid tissue of the body, as illustrated by the lymphoid glands, tonsils, and thymus, develops rapidly in childhood, and continues to grow at a somewhat slower rate up to puberty. Professor H. A. Harris pointed out that this type of growth must be of profound significance in young children, since one of the most important functions of the lymphoid glands is to act as a defensive mechanism against both acute and chronic infections.

The genital type.—The genital organs present a distinct type of development. These organs grow but slowly in infancy, are almost stationary from the age of two to that of ten, and develop rapidly in the two years before puberty, during puberty and later adolescence.

THE EXPERIMENTAL ASPECTS OF RETARDED OR ARRESTED GROWTH

(31) In section 30 of chapter II of our *Report on the Primary School* (1931) we gave a description, based on appendix II to that Report, of the evidence for arrested skeletal growth in children due to illness and malnutrition. We there stressed the fact that our knowledge of arrestation of growth in organs other than the skeletal tissues was at present imperfect.

A considerable body of data bearing on the arrestation and retardation of growth has been derived from experiments in the dieting of animals. The importance of appropriate food and the nature of its constituents has been more clearly recognised in the keeping of farm animals than in the home or the school. Growth can only take place by the assimilation of food material, and the rate of growth must be adversely affected unless there is a surplus of food over and above what is required for the other needs of the living organism.

There are many experiments which prove that abundance of food is more advantageous and profitable in the earliest stages of animal husbandry.

In the course of recent experiments, it has been found that the problem of retarded growth in animals is extraordinarily complex. For example, an animal on a diet without salt dies before an animal on absolute starvation diet. It would seem that of all the methods that may be employed for the rapid arrestation of growth, salt starvation and the withdrawal of fluids are the most potent. Even at the present time when the importance of the various mineral constituents, such as calcium, in the diet is more or less adequately recognised for children, suitable fluids such as milk, skimmed milk, oatmeal water, barley water, or ordinary drinking water are often not provided in sufficient quantity.

RESUMPTION OF GROWTH

(32) The question regarding the extent to which an animal, whose growth has been arrested, can recover strength and make up for lost ground on the restoration of favourable conditions is of great interest. The available evidence obtained from recent experiments is briefly described in appendix II to our Report on *The Primary School*. Here it will suffice to emphasise how varied are the factors which lead to the arrest of growth. Apart from the adequacy or sufficiency of diet, there is an important distinction between acute and chronic arrestations of growth. The former is most frequently observed in the acute affections of childhood, such as measles and whooping cough (if complicated by severe bronchial pneumonia) scarlet fever, diphtheria, typhoid; the latter in long-standing affections, such as tuberculosis and empyema. In metabolic diseases, such as diabetes, the arrest of growth may be proportional to the severity of the disease, and may only occur during acute exacerbations. In rickets, the bony abnormalities are produced only during the period of growth.

THE SUCCESSIVE STAGES OF GENERAL (SKELETAL) GROWTH IN YOUNG CHILDREN UP TO THE STAGE OF ADOLESCENCE⁽¹⁾

(33) During the month before birth the infant grows at a more rapid rate than at any other period. During this month

⁽¹⁾ This aspect of growth is more fully discussed in § 27 (pp. 24-5) of our *Report on The Primary School* (1931).

the child increases in weight by one per cent. every day. During the first year of postnatal life the baby grows rapidly and this stage may be described as the first "springing-up" period. Between the ages of one and five years the normal infant grows more slowly and more steadily; this stage may be described as the first "filling-out" period. From the age of about five to that of seven there is a second "springing-up" period. At this stage of the development the child increases rapidly in height, begins to lose his milk teeth and cut his second or permanent teeth; he becomes thin and long in the limbs and exchanges the chubbiness of babyhood for the characteristic family countenance. At the age of about seven the head of the ordinary child is almost as large as it ever will be. Between the ages of seven and eleven or twelve, according to sex, there is a second "filling-out" period, with steady growth. After the age of eleven or twelve there is a third "springing-up" period associated with puberty, and after the age of fifteen or sixteen there is a third and final "filling-out" period lasting up to the age of nineteen or twenty as puberty gives place to the stage of adolescence.

It will be seen on comparing this brief statement, with the diagram illustrating the growth curves⁽¹⁾, that each of the three "springing-up" periods is in its turn followed by a "filling-out" period. Each of these stages has its peculiar characteristics. The normal development at each of these several stages is liable to be disturbed by oscillations of growth and may be appreciably modified by diet, environmental conditions and diseases. It should be mentioned that several physiologists have recently described the human growth curve as exhibiting only two outstanding periods of accelerated growth, that immediately before and after birth, and that of adolescence. These two stages of rapid growth are, according to this view, superimposed upon a process of steady development, out of which the accelerations arise. This process of regular and steady growth leads, in healthy children, to an annual increase in weight of about $4\frac{1}{2}$ lb. (2 kilograms) between the ages of two and twelve. In the present brief statement, however, the older view of three "springing-up" periods has been retained on clinical grounds which, in the present state of research, appear to be more trustworthy. The graphical representation of the second "springing-up" period between the ages of five and seven is obscured to a great extent in statistical curves of height and

(¹) Appendix II, p. 217.

weight. It is found, however, that when children are examined as individuals the changes in body-build at the time of the onset of the second dentition are noticeable and significant. The rapid increase in height and foot length, the modifications in the proportion of the limbs and the peculiar liability to certain diseases, justify the retention of the older conception of three "springing-up" periods. It is impossible to over-emphasize the fact that curves of height and weight give a very imperfect picture of the interrelated patterns of growth in the various systems of the human body. At any one particular moment in the child's life one or more organs show a rapidity of growth which may or may not be reflected in the development of other organs. Furthermore, the ages selected in discussing the six stages of growth should be regarded as rough land marks only and not as strict lines of biological demarcation.

THE COMPARATIVE INCIDENCE OF CERTAIN DISEASES AT SUCCESSIVE PERIODS IN THE CHILD'S DEVELOPMENT

(34) The available evidence indicates that the three "springing-up" periods are peculiarly associated with certain diseases, and that illness tends to leave more severe *sequelae* if it comes within one of these periods, when the child's organism is already taxed to the utmost in providing the energy required for growth. During the first "springing-up" period to the end of the first year of post-natal life, the infant is specially liable to certain nutritional diseases, such as infantile diarrhoea, rickets, and digestive disturbances. During the first "filling-out" stage, between the ages of one and five, and during the second "springing-up" stage, between the ages of five and seven, the incidence of acute infections and fevers, such as measles, scarlet fever, chicken pox, whooping cough, and diphtheria, is heavier than at other periods. Some of these epidemic diseases tend to leave serious after effects; for instance, measles and whooping cough, which involve the respiratory tract, may be followed by tuberculosis in the glands of the chest, and scarlet fever in children between the ages of five and seven is not infrequently followed by running ears and inflammation of the kidneys. Moreover, the milk teeth of many children frequently become carious. Oral *sepsis* ensues in many cases, and causes much ill-health from septic products being either swallowed or absorbed from the gums. Furthermore, the tender teeth and inflamed gums lead to digestive disturbances as a result of faulty mastication.

During the second "filling-out" period between the ages of seven and eleven, the incidence of acute infectious diseases is less heavy, but the chronic *sequelae* of preceding infections may be observed in many children. It will thus be seen that children are on the whole more liable to infectious illness during the lower stage of primary education. It has been found that the risk of the spread of infectious diseases among young children at school is largely reduced when the school buildings are designed on open-air lines and when there is an adequate allowance of cubic space for each child. *The most important single factor in reducing the incidence of infectious disease is that the school should be of open-air design.*⁽¹⁾

THE MASTER TISSUES OF THE BODY AND THE EFFECT OF STARVATION ON THEM IN GROWING CHILDREN

(35) Throughout all the vicissitudes of growth, certain tissues of the human body are distinguished by their capacity to resist the effects of starvation or disease. For instance, the brain maintains its growth and activity in a remarkable degree; the heart and the diaphragm resist wasting so that the circulatory and respiratory systems may continue to function; the liver as the laboratory of the body, and the kidney as its main excretory organ, approach the brain, heart and diaphragm in resisting unfavourable conditions. For this reason they are justly described as "master tissues" and are the last to be influenced by starvation. The blood also may be regarded as a master tissue, since it makes efforts to retain a constant composition during starvation. If there is, however, any shortage of minerals or salts the resistance of the blood rapidly collapses and anaemia results.

The skeleton has not the resistance of a master tissue, particularly when the diet is inadequate in mineral salts or vitamins. The growing organism of a young child will indeed make an effort in such circumstances to increase in length, but the quality of the bone laid down is poor. The tissues which waste most rapidly in starvation are the subcutaneous fat, the fat in the abdominal cavity, the voluntary muscles of the limbs, and the involuntary muscle of the gut. The wastage of the muscles tends to be selective, and among the first to be involved are usually the deltoid muscle of the shoulder, the muscles of the buttock, and the *vastus internus*

⁽¹⁾ See also Chapter VIII, §116.

above the knee. Later the flexor muscles of the forearm and the muscles of the calf begin to atrophy. As a result of the wastage of fat and muscle, the skin becomes loose, wrinkled and unhealthy. Inasmuch as the wastage of the subcutaneous fat and muscles of mastication is so variable, it is not possible to gauge the degree of bodily wastage by the facial appearance only. The characteristics of behaviour in underfed children are also variable and difficult to assess. As in starved animals, the response to starvation or malnutrition in children in the earliest stages may be increased activity, either muscular or mental, to be followed in the later stages by comparative inactivity and mental apathy, leading to muscular inertia and lethargy. In particular, the difficulty in maintaining sustained effort of any sort is very noticeable. *Inactivity and mental apathy in a child should call for an investigation of his dietary, both in its quantitative and qualitative aspects.*

THE AMOUNT OF FOOD CONSUMED IN RELATION TO GROWTH

(36) One of the commonest errors in dietetics is a belief in the infallibility of the human appetite. It is a complete fallacy to suppose that an under-nourished or badly fed child will eat more food if he needs it. Experiments with animals reared on an inadequate diet have proved conclusively that failure in appetite follows failure in growth. This fundamental fact is frequently ignored by parents and nurses, by teachers, and even sometimes by physicians. Sir Frederick Gowland Hopkins in an article in the *Journal of Physiology* for 1912 writes, "If then a factor or factors essential to growth be missing from, or deficient in, a dietary, the constant arrest of, or diminution in, growth energy may diminish the instinctive consumption of food, while the supply of such factors may increase consumption as an indirect result of a direct effect upon growth." This consideration should be borne in mind by teachers and doctors when confronted with the problem of the stunted, undernourished child. The child may seem not to desire more food because it is deficient in quality, owing to his being fed on a diet consisting almost wholly of bread, margarine, jam, sugar, tea, with occasional biscuits, chocolate and beef essences. In such children a remarkable increase in the intake of food may usually be observed almost at once when the processes of growth have been set in motion by adding the dietetic factors that are lacking, viz., fresh animal and vegetable food and cod-liver oil. This important truth may

be stated in another form. A growing child should have variety of suitable foods placed before him in considerable quantities, so that no loss of appetite may ensue through the omission of some essential factor with a consequent failure of growth. The food should be varied and above all fresh.

THE IMPORTANCE OF AN ADEQUATE SUPPLY OF ANIMAL FATS AND FRESH VEGETABLES FOR YOUNG CHILDREN

(37) The results of recent experiments on human beings and lower animals have proved conclusively the importance of an adequate ration of animal fat. When an infant is weaned it is consuming almost a quart of milk a day, containing about one and a half ounces of fat. The weaned child, therefore, in order to obtain the necessary fat, should have a pint of cow's milk and one ounce of butter per day. In view of the fact that many families cannot afford this quantity of milk and butter, but have to feed their children largely on margarine and condensed milk, the average consumption of fresh milk and butter by growing children is frequently only about a quarter of what is really necessary. Sufficient fresh food for growing children is especially difficult to get when there is no garden supply of fresh vegetables and salads, and where fruit is not available. Experiments have shown that the best and most inexpensive way of remedying any deficiency of fresh food is to give a daily ration of about one teaspoonful of cod-liver oil to each child during winter months, and an adequate supply of cheaper fruits and vegetables such as oranges, tomatoes, greens and carrots. *Where school meals are provided, these considerations should be borne in mind.*

THE CAPACITY OF YOUNG CHILDREN TO GROW OUT OF VARIOUS DEFECTS AND AILMENTS

(38) The recuperative powers of the organism in childhood are very great, and there is a measure of truth underlying the common expression often used in reference to childish ailments and defects, such as rickets, stammering, failure of control, etc., that the child will probably "grow out of it". For the present purpose, it is of interest to examine briefly the extent to which children do in fact grow out of various diseases in the organs involved in the four types of growth described above, viz., skeletal, neural, lymphoid and genital.

(i) In the skeletal organs the power of repair is very considerable. For instance, the slight degrees of bow-legs, knock-knees and flat feet, which are common in children between the ages of two and four years, often disappear by the age of ten. The pigeon breast and other deformities resulting from emphysema (loss of elasticity) of the lungs, and bronchiolectasis (dilatation of the small tubes) after severe whooping-cough and pneumonia largely disappear. Owing partly to their response to exercise, the muscles exert a valuable corrective influence in cases of skeletal defect and aid that innate tendency towards symmetrical growth which is possessed in greater or lesser degree by all the skeletal structures.⁽¹⁾

(ii) In the organs involved in the lymphoid type of growth, the recuperative power is less noticeable. Nevertheless, careful observation has revealed the extent to which tuberculous glands will heal, provided the diseased part be given adequate rest. The importance of rest, diet and fresh air is so great that many doctors hesitate to recommend operative treatment. Like considerations apply to enlarged tonsils and adenoids. It is now being realised that abnormal conditions of these structures tend, in a considerable number of cases, to subside spontaneously. If the children affected are kept under observation for a period, it is found that the apparent need for operation no longer exists in all cases.

(iii) The organs involved in the urogenital type of growth (e.g. the kidneys) are for the most part exceedingly complex. The kidney is often injured in the acute fevers of childhood. Nevertheless, the nephritis following scarlet fever and diphtheria usually disappears with or without medical treatment, if the child is put on a suitable diet.

(iv) In the brain and the organs of special sense, displaying the neural type of growth, the capacity to grow out of inherent disability seems to be very slight, since the process demands not only repair to the damaged structure, but functional re-education of the tissues involved. In some instances the lesion is so extensive as to result in complete loss of function. In fact, the nervous system as a whole seems to be isolated from the rest of the organism to a remarkable degree. It possesses an amazing precocity of growth, not only in its centre, the brain, but also in the special sense organs. For instance, the brain attains 83 per cent. of adult weight in

⁽¹⁾ see also §39.

children of the age of seven years, the growth of the eye as a whole is even more precocious than that of the brain: the conjunctival sac which keeps the eye moist, attains adult size at the end of the second year; the eyeball grows with great rapidity in the first two years of post-natal life, and has completed its development by the age of seven. Similarly, the most important stage in the growth of the ear is completed in the sixth month of pre-natal life.

The eye and the ear⁽¹⁾ differ appreciably in respect of the effects of age. The eye has to adapt itself to certain definite changes in the growth of the brain, in the eye itself, and in the skull at successive ages. The eyeball itself alters in shape with age, as does also the actual structure of the lens. Defective vision in childhood is usually due to abnormalities in the shape of the eyeball, and the visual acuity in these cases does not always remain constant. Such variations may be regarded as an age change, susceptible to arrestation and to rapid alterations with growth. The irregular rates of growth in different parts of the eye lead to temporary failures of adaptation that are common in young children. The degree of muscular co-ordination involved in the movements of the eyeball by means of the ocular muscles is high. Imperfect co-ordination in this respect produces squint (*strabismus*). In some instances children tend to grow out of this defect, but by far the greater number of cases of squint require correction by glasses, by special exercises, and even by an operation.

EXERCISE AND MOVEMENT IN CHILDREN

(39) Animal life, being essentially dynamic, as distinct from static vegetable life, subsists through a series of movements, and all these movements should be sustained in regular and adequate exercises. Respiration, digestion, the circulation of the blood, and all the excretory operations involve movement. If any mobile organ undergoes suspension of movement, its anatomical structure degenerates. Muscular fibres which are not exercised waste progressively with corresponding loss of power. The laws of muscular action, alike in the voluntary muscles of the body, in the involuntary muscles of the blood vessels and in the alimentary canal, require that the muscle, in order to maintain its structure and function, must have adequate exercise.

⁽¹⁾ see also §§ 41 and 42.

SLEEP AND WAKEFULNESS IN CHILDREN

(40) Sleep is essential for young children, not only to produce a restorative effect on the functions of life, but also to grant respite from the exhaustion produced by enforced standing, and by stationary postures, e.g. sitting. Standing and sitting still alike involve considerable effort for children. In order that sleep may be adequate, it is necessary that it should take place at a stated hour and continue for a definite time in a recumbent posture without any disturbance of the natural functions by over-heating, faulty digestion, or vitiated air. In children with a poor circulation, cold feet frequently prevent or delay the onset of sleep. The amount of sleep required varies greatly according to the state of the organism and the temperament and habits of the individual child. Infants pass most of their time in sleep; children under the age of two sleep for twelve or fourteen hours of the day; children between the ages of two and seven may sleep from ten to twelve hours of the day. It is quite common for healthy children to take a considerable time, say half an hour, to fall asleep. Disease or uneasiness of any kind often produces unsound sleep. The diseases most associated with wakefulness are the acute fevers, inflammatory disorders, and brain diseases. Disturbed sleep is frequently observed in children subjected to some form of irritation on the surface of the body, such as an affection of the skin, worms, or phimosis. Earache and the cutting of teeth produce uneasy sleep, and in diseases of the bones and joints, such as rickets, disturbed sleep and night cries are common. In diseases of the bone and in brain disease the actual pain may awaken the child. In relatively healthy children over-heating or indigestion due to a heavy meal before retiring frequently interferes with regular sleep. Many children are disturbed in their sleep by bouts of coughing, which are frequently due either to bronchitis or to enlarged tonsils and adenoids. In cases where sleeplessness is due to over activity of the mind, an effort should be made to change the child's train of thought and mode of behaviour in the hour before retiring to rest.

It is most desirable that adequate facilities for sleep should be provided for children below the age of five in nursery schools and classes. Facilities for sleep should also be provided for some children above the age of five in infant schools.⁽¹⁾

⁽¹⁾ see also Chapter VI, § 96.

VISION IN YOUNG CHILDREN

(41) For some weeks after birth the infant does not respond to light. Gradually he appreciates varying degrees of brightness, learns to focus on near or distant objects by the effort of "accommodation", acquires binocular stereoscopic vision, and judges distance and colour. The development of these processes is slow and conforms, with due allowance for differences in individual children, to a more or less definite pattern.

The growth of the eyeball is most rapid in the first two years of life, and by the age of five it has almost attained its maximum size. A considerable amount of this growth is due to increase in the thickness of the coats of the eye, though the increase in the diameter of the cornea between birth and maturity is only 2 millimetres, or approximately 20 per cent. This increase occurs almost wholly during the first two years after birth. The rapidity of growth displayed by the eyeball is even more noticeable than that of the brain, and it is not surprising that the eye should be peculiarly susceptible to injurious influences during early childhood.

The process of adaptation which enables the eye to focus rays of light from near as well as from distant sources is known technically as "accommodation". Most orderly muscular efforts, such as those involved in respiration and walking, involve the alternate use of antagonistic sets of muscles. "Accommodation" for near vision is however peculiar, since it frequently involves sustained muscular effort extending over a considerable period of time. The muscular effort entailed in continued reading is of a type comparable with that required to hold the arm aloft for a long time, and symptoms of ocular fatigue may therefore be frequently observed in school children. The only rational treatment for any form of fatigue is rest, and rest for the tired eye can best be secured in darkness, since bright light exhausts the visual purple which sensitises the rods of the retina. Restoration of this visual purple takes place in darkness. The normal eye, if overworked, may suffer from fatigue, and such fatigue is likely to occur even more readily in children who have an error of refraction; they are working under a visual handicap. Among the ordinary symptoms of eye-strain are headache, frowning, blinking, twitching, and rubbing of the eyes.⁽¹⁾ There may be, in addition, some

⁽¹⁾ See *Handbook of Suggestions on Health Education* (1933), page 31, issued by the Board of Education.

external inflammation, as of the margins of the eyelids (*blepharitis*) or of the delicate lining of the front of the eyeball (*conjunctivitis*). These inflammatory conditions are by no means invariably due to eye-strain; they may be produced by external infections, by malnutrition, or by uncleanness. Since however, the lymphatic drainage of the eyeball is hampered by sustained ocular effort, such conditions will always tend to be aggravated when any eye-strain is already present.

Squint (*strabismus*) in children is a condition which usually yields to early treatment. If, on the other hand, it be neglected, a failure of binocular and stereoscopic vision results. The child uses one eye to the gradual exclusion of the other, the function of which eventually undergoes atrophy through disuse.

Myopia, or short-sight, is not common in children under the age of two. This condition usually appears during school age, and has a tendency to be progressive in greater or less degree during the period of growth. Many cases of myopia are readily corrected by concave lenses, but severe cases require careful treatment with rigid limitation of close work, such as that involved in reading, writing and sewing.

Hypermetropia, often inaccurately described as long sight, is a normal condition in the early stages of childhood and causes trouble only in extreme cases, which are comparatively uncommon.

THE SENSE OF HEARING IN YOUNG CHILDREN

(42) The organ of hearing consists essentially of an external ear (auricle and ear-hole) middle ear (drum and ossicles) and internal ear (cochlea). These three parts are respectively sound-collecting, sound conducting, and sound-receiving. In man the auricle is not so specially developed as the auricle in many lower animals which cock their ears in order to localize sound. The middle ear is bounded on the outer side by the drum and on the inner side it connects with the *nasopharynx* by a narrow canal lined by mucous membrane. This narrow canal, known as the Eustachian tube, is the path whereby infection spreads from the nose to the middle ear. The internal ear (labyrinth) consists of an acoustic portion called the cochlea, which conveys auditory stimuli to those parts of the brain which interpret them. In addition to the

cochlea the internal ear also contains the three semicircular canals arranged in three axes at right angles to one another, which give to the brain the sense of orientation or position in space. Disease of the cochlea causes deafness. Disease of the semicircular canals produces giddiness (vertigo) and jerky movements of the eyeball (nystagmus). The growth of the drum, middle ear and internal ear in antenatal life is extremely rapid so that by the sixth month of foetal life these organs are within 10 per cent. of their adult size. This early development of the apparatus of hearing is accompanied by a comparatively late development from the functional point of view of those parts in the cortex of the brain that are peculiarly associated with hearing and speech. The apparatus is laid down early in the growth of the individual, but the complete functioning of the apparatus is of late development.

Hearing, like vision, varies considerably in children. Most children can hear sound waves extending over seven octaves (40–4,700 vibrations per second). Some children, like dogs, can appreciate still lower notes, others can distinguish higher notes such as those emitted by a bat during its flight. One of the main features in the development of the child is the manner in which he learns to become insensitive to particular sound stimuli. Auditory memory probably displays a greater range of variation in different children than visual memory.

The delicate mucous membrane of the deep surface of the drum, of the middle ear and of the Eustachian tube is continuous with that of the respiratory tract. Any inflammation of the latter, whether it be due to irritating gases, or to an infection such as an ordinary cold, or an acute infectious fever, may extend to the Eustachian tube and middle ear. Inflammatory conditions of the middle ear are most frequent in the youngest children. They are peculiarly dangerous in children because the acute pain of earache does not always appear in the very young when there is severe inflammation in the middle ear, as the several parts of the temporal bone have not then become consolidated to form a compact whole. Thus instead of pus bursting the drum and so leading to a discharge from the ear as usually happens, pus may make its way to the membranes of the brain, or appear under the skin above, behind, below or even in front of the ear. Acute inflammation of the middle ear is a condition commonly associated with an ordinary cold. It frequently accompanies acute infections such as measles, scarlet fever, and diphtheria. Chronic inflammation of the middle ear with its discharge (otorrhoea) frequently

occurs as an after effect of these acute fevers. This chronic infection lowers the vitality of the body, and retards the physical and mental development of the child. Furthermore, the scar tissue formed in the middle ear as a result of the inflammation and destruction of the drum leads to deafness, and the behaviour of the child and his emotional responses are considerably disturbed. Acute middle ear disease cannot be wholly prevented, but there is no justification for the continued existence of chronic middle ear disease in the presence of active medical treatment.

The treatment of chronic middle ear disease in children may be unsuccessful if attention be directed to the aural condition alone. In a number of cases it is necessary first to render the throat and naso-pharynx healthy by dealing with chronic infection of the lymphoid tissue (tonsils and adenoids) in this region. It is important that parents and teachers should not assume that a condition of deafness and middle ear disease may not exist merely because there is an absence of earache. *Teachers in infant schools should be on the alert to detect even slight defects of vision or hearing, or any nervous peculiarities, and should bring them to the notice of the school doctor, as such defects are responsible for much that is mistakenly regarded as "backwardness".*

THE RESPIRATORY AND EXCRETORY FUNCTIONS OF THE SKIN

(43) The skin consists of two layers, the outer layer called the *epidermis* and the inner layer called the *dermis*. At the orifices of the body the structure of the skin is somewhat modified, as may be seen for example at the lips. This latter type of skin structure is known as the mucous membrane; its superficial layer is very transparent, while the deep layer is highly vascular. The *epidermis* consists of flat cells, several layers deep, of which the deep layer is actively growing, whereas the superficial layer consists of virtually dead cells, which are shed naturally or are removed by washing. Some children have a thick skin; others, such as red-haired children, have a thin skin. Pallor or flushing at the onset of illness or under emotional stress has not the same significance in the two types of child. Furthermore, the amount of pigment in the skin varies with race, age and environment. It is important to note that the skin of some children does not react normally to sunshine and outdoor exposure. Production of pigment

is the normal response to sunshine, and children who do not develop this tan must be watched to ensure that they do not suffer from sunburn.

The vessels of the skin exhibit considerable variation in richness of distribution, and in the relative depth at which they lie. In some children a flush is easily seen, because the vessels are superficial. The veins which lie superficially, as on the back of the hand, enable large volumes of blood to be brought rapidly to the surface to be cooled in order to reduce the temperature of the body during or after strenuous exercise. A cold environment causes them to contract. The skin is characterised in most areas of the body by the presence of hair. In the new born babe the relatively unpigmented fine hair is called "down". It often persists with undue prominence in children who are definitely below the average in physical and nutritional development; in these children the eye-lashes are often dark, long and unusually curled. The nails often afford valuable evidence of nutritional condition. The longitudinally fluted brittle nails of children suffering from malnutrition are easily recognisable. After severe illnesses, transverse ridges are often seen in the nails, and they register the periods of acutely arrested growth, which have already been described in the section dealing with the skeletal system. The skin is not merely a protective organ; it has definite excretory functions, ridding the body of carbon dioxide, urea and sweat. The amount of carbon dioxide excreted by the skin is only about $\frac{1}{700}$ th of that expired by the lungs, but the excretion of sweat by the skin is very considerable. In addition to the sweat glands, there are other glands in the skin, developing in relation to the hair follicles, and known as sebaceous glands. Closely related to the hair follicles are special involuntary muscles which can cause the hairs to stand up, producing the condition seen in "goose flesh". The erection of the hairs is an involuntary reflex response to cold or, more rarely, to fright. "Goose-flesh" is not usually seen in children under two years of age.⁽¹⁾ The question of response to changes in temperature merits further consideration. Underneath the *dermis* is a fatty layer. The principal period of life at which there is a reduction of subcutaneous fat is the second "springing up" period between the ages of about five and seven. This reduction at the

⁽¹⁾ This fact is an important reminder that temperature control is of somewhat slow development.

beginning of the second dentition is of considerable importance. The fatty layer exercises a valuable function in tending to keep the temperature of the body constant, and any considerable alteration in the thickness of this layer is associated with increased susceptibility to changes in external temperature. The child has a much larger surface area in relation to his body weight than the adult. There are 30 square inches of surface area for each pound of body weight in a child of the age of seven, as compared with 16 square inches in an adult. The heat loss in the normal child is greater than in the adult, and the difference is still greater when children are suffering from malnutrition.

Between the ages of five and seven when the loss of subcutaneous fat in combination with rapid increase in height is most marked, the furrows, lines and dimples of the skin tend to become fixed and may become deeper, though any increase in wrinkling of the forehead should direct attention to possible errors of refraction in the eyes. Children who are hard of hearing frequently acquire either a countenance lined with anxiety or a blank expressionless stare. In cases of malnutrition the skin often becomes lax and wrinkled.

The thin outer layer or *epidermis* in young children may be injured by too vigorous washing and rubbing, by too free use of alkaline fat-solvent soaps, by faulty drying, by exposure to cold dry winds, by too much sunshine, as well as by dirt and parasites. Children are apt to be susceptible to bacterial infections, such as *impetigo*, while some children with a tendency to asthma are peculiarly liable to certain rashes usually associated with dietetic idiosyncrasy.

The health of the skin is of importance not only to the various functions already described, but also because it is richly supplied with nerves. In the child the concentration of nerve endings per square inch of skin is greater than in the adult, since no new nerves are formed after birth. On the other hand, the nerves of the skin do not function properly at birth, and it is only gradually that the special nerve endings are brought into action for the registration of sensations. It cannot be too strongly emphasised that the stimulation of the nerve endings by exposure to sunshine and fresh air forms a valuable part of the general education of the nervous system, and gives the child that sense of aliveness and awareness which is so essential to purposive activity in later life.

THE TEETH IN YOUNG CHILDREN

(44) In this country no organ or tissue of the human body is so frequently affected by disease as are the teeth. It is rare to find a child of school age without some evidence of dental caries, past or present.

There is general agreement that dental caries is produced by the acid fermentation of carbohydrate food in the mouth. The acid thus formed acts as a solvent on the enamel of the tooth, and when this has been penetrated, further solvent action is reinforced by the action of certain germs (bacteria) found in the flora of the mouth, which have the power to disintegrate the organic content of the dentine.

For many years the view was generally held that liability to caries and the rate at which the carious process progressed were comparatively uninfluenced by variations in the structure of the teeth. In other words, a poorly calcified tooth was believed to be little more susceptible to decay than one that was well formed. Comparatively little research was accordingly directed towards elucidating the factors responsible for determining the structure of the teeth. Investigators of the problem of caries concentrated their attention largely on what might be called the environment of the teeth, and their researches were directed towards such questions as the physical and chemical constituents of a satisfactory diet, the composition and functions of the saliva, and so forth.⁽¹⁾

There is no doubt whatever that modern methods of cooking and preparing food result in the teeth and jaws having less work to do than nature intended. It is common experience that any organ of the body which is not given a proper amount of work to do tends to degenerate or atrophy. While the structure of the teeth is such that they cannot be subject to the same kind of atrophy or wasting as that which affects, say, an unused muscle, still nature penalises those who do not use their teeth as they were intended to be used, and if, partly through inefficient mastication, fermentable foodstuffs are left adhering to the teeth after meals, it is not surprising that caries so often appears. Most dentists agree that the systematic use of a tooth-brush, useful though it may be in helping to remove these fermentable substances, cannot wholly prevent caries, and that its effect is inferior to that produced by a suitable diet.

⁽¹⁾ The work of Dr. Sim Wallace in this connection is well known, and his advocacy of a diet which would tend to secure that fermentable carbohydrates do not remain in the mouth at the end of a meal, has been of great value.

The structure of the teeth has received much attention in recent years. The disease known as rickets is characterised by defective calcification of the bones.⁽¹⁾ It appears that, without an adequate supply of vitamin D, the body cannot properly utilise the calcium which is ingested in food, and the structure of the growing bones is therefore seriously affected.

The fact that bones and teeth, while differing in many respects, are both calcified structures, suggested that bone calcification and tooth calcification might be subject to the same influences, and this point was discussed in a memorandum prepared for this Committee by Mrs. Mellanby, who has worked on the various aspects of the subject for the past decade. By feeding experiments on puppies, she showed that vitamin D has a remarkable effect on the structure of the developing teeth in these animals, and that it is possible at will to produce well formed or poorly formed teeth, according to the adequacy of the supply of this vitamin in the diet. More recently she has shown that cereals tend to have the opposite effect, that is, that they have anti-calcifying properties.

The view held formerly that there was little causal connection between dental caries and defective structure was based to some extent on the belief that whereas dental caries in human beings in this country was widespread, defective dental structure was somewhat exceptional. Mrs. Mellanby, however, showed that defective structure is much more common than had been supposed, and that there is a close connection between defective structure and caries in human teeth.

It then remained to be seen whether the controlled administration of vitamin D to children would have the effect of reducing the incidence of caries or of retarding its progress. Such work as has already been done by Mrs. Mellanby and her collaborators on this subject has yielded suggestive results. In her experiments she observed a notable reduction in the incidence of caries among children receiving a regular supply of vitamin D as compared with that found in those children who acted as controls. Caries, however, was not abolished, and it is therefore impossible to say more at present than that there is evidence that the administration of vitamin D appears to increase the resistance of human teeth to dental caries.

(1) Prof. E. Mellanby, F.R.S., Secretary to the Medical Research Council, has done much pioneer work on this subject.

CHAPTER III

THE MENTAL DEVELOPMENT OF CHILDREN
UP TO THE AGE OF SEVENPART I.—GENERAL MENTAL DEVELOPMENT FROM BIRTH TO
THE AGE OF TWO.

(45) *The processes of mental development up to the age of two.*—During the last three decades the views of psychologists regarding the mental development of children in the earlier phases of life have undergone a great change. Many of the older opinions have been modified, fresh facts have emerged, and above all it has been shown that experiences during the first few years of life probably do more than those of any later stage to determine character and intellectual interests. For the purpose of our present inquiry we are primarily concerned with the mental development of children between the ages of two and seven, but in order to understand the process of mental growth and the conditions required for normal healthy development between these ages, it is necessary to describe briefly the mental condition of the child at the beginning of this period and the particular processes that have been in operation up to the age of two.

These processes are still only imperfectly understood; future research may throw further light on the effect of varying conditions during the first one or two years of the child's life and during the nine months before birth, and also on influences deriving from heredity. It will suffice to point out here that though a child's form and activities at birth are in part determined by its heredity, the effects of hereditary influence are by no means wholly restricted to those manifested at birth. The vital reflexes are already present in the new born child and such processes as breathing and the beating of the heart are automatically and efficiently performed. Some more complex activities may be observed within the first hours of life—for example, sneezing, and the action of the kidneys and the bowels. Other activities are not manifested for some considerable time, though it is

evident from the manner of their emergence that they do not require to be learnt or practised. The primitive expression of primary emotions such as anger and fear, develops somewhat gradually,⁽¹⁾ and early observers such as Darwin and Preyer emphasised the way in which these instinctive activities emerge almost spontaneously and so appear to be inherited.

SENSORY DEVELOPMENT AND MOTOR DEVELOPMENT

(46) *Sensory Development*.—For the purposes of scientific study it is convenient to consider in turn the various aspects of the child's mental development, and to treat separately of sensory development, motor development, memory, reason and so forth; but it must be borne in mind that these are only scientific abstractions—aspects artificially selected from the whole activity of the child. In actual life it is always the individual child as an organic whole with whom we have to deal, and never with his sensory development alone or with his motor development alone. His activities in relation to the people and the things in his environment form an integral unity, every part of which is bound up with every other part.

In human beings the senses of highest significance to intellectual development are sight and hearing. The eye as a sense organ is ready to function at birth, though vision involves not merely gazing at an object, but following it and moving the eyes over it in order to analyse it. The new born child is able to make eye movements, but the eyes do not always move together. Soon after birth he sometimes seems able to follow a bright moving object, but even till the end of the third month most children lose sight of objects that are more than seven feet away, and it is clear that visual perception only develops slowly. Less is known about the development of hearing. The ear is apparently not quite so ready to function at an early stage as the eye, but by the end of the fourth month the child quickly recognises differences between the voices of different persons and between the emotional expression of the voice indicating anger, or pleasure, or fear.

Movement is controlled by the muscle sense, but little or nothing is known regarding its development. The remaining senses seem to be fairly well defined at, or soon after, birth.

⁽¹⁾ A summary of the salient points of our present knowledge on emotional development will be found in Appendix III.

Smell or taste guides the child in taking his food, and, above all, touch seems to be highly developed from the beginning. Indeed, during the first few weeks of life it is chiefly the child's own skin which puts him in contact with his environment. When the child is awake and undistracted, he occupies himself largely in getting sensations of movement and touch.

Motor Development.—During the third month of post-natal life the child begins deliberately to hold objects in his fist, and thereafter exhibits considerable activity in gripping things and moving them at random. At this stage he will often make flourishes with the legs as well as with the arms, as though he were not yet certain which was the prehensile limb. At this stage he can explore objects by vision and touch, but does not as yet connect the two processes. His hands do not reach out for the objects observed by his eyes, nor do his eyes turn to observe things which he is holding in his hands. This important development takes place towards the end of the fifth month, and then at last the child realises that the thing which he sees is identical with the thing that he is feeling. During the first half year of life, mental development accordingly consists chiefly in (i) the development of vision, leading to the capacity for fairly exact visual perception, and (ii) the development of hand-movement, leading up to prehension with the hands and finally to the exercise of the two processes in association.

DEVELOPMENT OF WALKING

(47) Walking is one of the most important motor activities that mark the stage of development up to the age of two. A most interesting problem is to discover how far walking is an instinctive action, the urge to which is delayed after birth, to ripen when the appropriate time has arrived, and which is then learned spontaneously by the child; and how far it is a process which has to be taught. On the whole, it would seem that human beings, like the lower animals, inherit the power to use their legs for locomotion, but that much trial and error are required for the efficient and steady performance of this function in an upright posture. The power to walk, when finally acquired, brings with it important changes of character, since the child now becomes more independent of the mother or nurse, and desires to move about for his own purposes and at his own free will.

DEVELOPMENT OF SPEECH

(48) An important stage in the intellectual development of the infant is marked by the beginnings of speech, a peculiarly human activity. Speech has apparently evolved out of primitive emotional cries such as even the lower animals can make. It has been a commonplace in literature that the new born child utters a cry on his first entry to a new and unfamiliar world. It is probable, however, that this initial cry is merely an automatic result of the first intake of breath. Thus the child can utter cries and can scream almost from the first, though, until the first four weeks of life are over, there is little correspondence between the cries and their causes. After the fourth week, however, the noises rapidly become differentiated. During the first four or five months they almost exclusively indicate bodily discomforts and needs, but presently the child begins to make noises expressive of contentment, and will babble when he is lying in comfort and quiet. At first differences in the child's noises are due simply to differences in the shape of the cavity of the mouth. Vowel sounds, such as *a* are usually the first articular sounds. Among the consonants, the labials *m*, *b*, *p* are usually the first heard, although sometimes gutturals precede them. The liquids come much later, and many children cannot pronounce *r* clearly until near the close of infancy. Before the end of the first six months many children use in babbling many of the vowels and consonants that enter into articulate speech. All that the child appears to inherit is a tendency to make specific articulate noises, and possibly also a tendency to attach some significance to sounds so made or heard. The child invents and uses sounds for himself long before he copies the words of other people. When the child learns to speak, he does it by putting together noises of his own that approximate to the words he hears from those around him. So far as is known, the child inherits no nervous organisation which tells him exactly what muscles to move in order to make a given sound.

The time of appearance of speech may be an important index of the child's intellectual development. At the age of twelve months, over 80 per cent. of normal children have five or six words, and rapidly increase their vocabulary. At this stage, a child expresses a sentence by a single word aided by gesture or vocal intonation. Few children can combine two words appropriately and significantly till towards the end of the second year.

HABITS OF PHYSIOLOGICAL IMPORTANCE

(49) During the period up to the age of two certain habits must be acquired, and the process may be of great significance for the child's future social development. Of these the most important are those connected with food, viz., the taking of food, and the excretion of its waste products. It may be observed that well-meant, but tactless efforts on the part of parents may often, even at this early stage, seriously impair the child's social character, and in particular make him intractable when the time comes to inculcate higher and more elaborate habits. In brief, the proper principles would seem to be :—(i) that the necessary situation and the daily routine should be so arranged as to evoke the desirable line of conduct at the appropriate time, without any personal pressure. The child's attention should be directed to desirable behaviour rather than to undesirable behaviour. His successes should be emphasised and his failures minimised, and in general all emotion should so far as possible be avoided, particularly emotions of shame or hostility. A tiny child may exhibit little interest in matters of food, but if the parent displays exaggerated interest, coaxing, reproaching or scolding the child in order to make him eat, the child will soon discover that he can use this resistance to the wishes of the parent or nurse as a convenient means of playing on their emotions. Like considerations apply to such matters as excretion, personal cleanliness, habits of sleep, and seemingly unimportant little tricks, e.g. fits of crying or thumb-sucking.

EMOTIONAL DEVELOPMENT

(50) One of the most obvious and significant facts about children during the first two or three years of life is the relative strength of their emotions and impulses, which they show little power of modifying or restraining according to the wishes of others or the requirements of reality. The reason for this is that man, like other higher mammals, inherits a number of powerful instincts, the majority of which ripen within the first few weeks of life. Intelligence, on the other hand, though an innate capacity, matures far more slowly. Hence, the tiny child's instinctive reactions are completely out of proportion to his understanding and his power of self-control. During the first two years of life the child's emotional reactions are concerned primarily either with physical comfort or with bodily nutrition. The reflexes and instincts connected with nutrition are fairly definite, but it is important to

realise that the processes involved are not merely a matter of reflex action. Hence the problem of training young children in respect of feeding or excretion should not be regarded purely as a matter of controlling local physiological mechanisms.⁽¹⁾

One obvious point of technique is to aim at regular times both for feeding and excretion. During the first year of life the chief crisis in development is that connected with weaning. With the first appearance of the teeth there is a marked tendency to use them, and the child seems almost to take a pleasure in biting. If this quasi-destructive instinct be thwarted, it may become exaggerated and develop into a medium of defiance and rage. Excessive destructiveness in little children is often a vestige of injudicious handling during the period of weaning. During the second year of life there is a noticeable increase in the variety and vividness of the child's emotions. When the child can walk by himself, he begins to display more independence, and there is sometimes a tendency to treat him as a small adult. Systematic investigations have shown that outbursts of anger often rise to a maximum during the second year. If, however, the child be given definite opportunities for self-help and self-expression, and if there be no increase in the amount of scolding or punishment, this phase tends rapidly to pass away. Throughout the first two years of life the most marked feature in the child's emotional attitude is his attachment to his parents. He may become definitely jealous over the attention of grown-ups or playmates who seek to share his toys. Other children may interest him, but it is mainly to the adult that the child of this age looks for emotional satisfaction.

PART II.—MENTAL DEVELOPMENT IN CHILDREN FROM THE AGE OF TWO TO THAT OF FIVE.

(51) *The emergence of certain inherited tendencies and their significance in the child's daily life.*—From the age of two onwards there are no sudden changes or well marked stages in the mental development of the growing child. The acquisition of speech and of locomotion are changes which appear at fairly well-marked dates and are mastered within a comparatively short period; their effect on the child's intellect and character is very noticeable. Nothing of this type occurs during the later stages of mental growth.

⁽¹⁾ This topic is discussed in greater detail in appendix III.

Older psychologists recorded the emergence of new emotions and fresh interests in the children whom they studied, and at first believed that the appearance of such emotions and interests occurred almost abruptly at certain ages. Many inquirers held that these emerging interests corresponded closely with the interests and occupations shown by primitive man. It was assumed that man passed through definite cultural stages ; and so long as the "recapitulation" theory was generally accepted, it was supposed that the individual child tended to repeat in the same order, though in abbreviated form, all the successive phases through which his ancestors had passed. This view, commonly called the "culture epoch" theory, exercised a profound and, in some respects, a salutary influence upon the planning of syllabuses and "curricula" for infant schools. In the hands of persons of practical experience and common sense, it undoubtedly did much to improve traditional methods of instruction, since it substituted activities of a simpler and more natural type for premature attempts at formal instruction in the 3 Rs.

The theory itself, however, must not be pressed too far, and the main assumptions on which it was based are now largely abandoned. It was too simple to explain the facts, and the facts reveal, not the abrupt and successive emergence of a few definite interests, but a progressive and almost continuous evolution.

Most psychologists, however, still hold that the mental development of tiny children is to a large extent determined by specific tendencies which are inherited. They still differ widely, however, regarding the character and number of those innate tendencies. The "Behaviourists," would recognise only three or four tendencies of the simplest and most mechanical type. Other psychologists, like Thorndike, have drawn up long lists of innate tendencies which they regard as being little more than complex reflexes. In Great Britain the prevailing view groups these tendencies together, regarding them as manifestations of about a dozen appetites and instincts. The best way to discover what these particular forms most commonly are, is to watch the child while he is engaged in free spontaneous play. Every observant parent, nurse and teacher will have noticed that children at successive ages are disposed to prefer different forms of play. Many psychologists have endeavoured by means of questionnaires and statistical analysis to study the type of game that seems specially appropriate for children at each successive age.

Such studies may prove suggestive to the teacher in planning occupations for the nursery stage, but different individuals, different races, and different social classes, vary so much in these respects that earlier generalisations can only be accepted with reservation. It is more satisfactory to provide freedom in a suitable environment for the individual children or the particular group, and then to observe what interests predominate.

APPETITIVE AND REACTIVE TENDENCIES

(52) One of the most striking discoveries of recent psychology is that the normal child will learn spontaneously a large number of things which it was formerly considered necessary to teach him deliberately. Some of the older psychologists believed that each child was born with no special character or tendencies of its own, being simply a lump of malleable material that had to be moulded into shape by parents and teachers. Later psychologists recognised that the new born child was already equipped with certain inherited tendencies. It has now for many years been recognised that a large number of tendencies to action which are not obvious at birth may nevertheless be inherited: their emergence is merely deferred. They ripen spontaneously, though after some delay. For instance, many parents imagine that they have to teach their babies to walk. It would appear, however, that, when the inner nervous mechanisms have had time to develop, the child will of its own accord begin to learn to walk.

These tendencies to spontaneous action may be divided into two main groups:—(i) those sometimes termed appetitive; (ii) those described as reactive. Behaviour arising from the former is mainly concerned with physiological needs, and arises out of inner feelings. If the appetitive tendencies remain dominant in the child's mental development, he becomes immersed in his own pleasures and pains and continues to be isolated. Too exclusive an insistence on the daily incidents of hygienic routine—eating, drinking, excretion, dressing, washing, and the like—may easily foster this self-absorption, and thus ultimately warp the emotional development of the child. Under natural conditions, the child's ordinary surroundings would be full of objects and situations calculated to stimulate his reactive tendencies, and so keep him in constant touch with the real world outside. *In the ordinary urban environment there is little to satisfy the child's natural impulses; it is important, therefore, to provide an*

environment which will do so. Persons in charge of children under the age of five should, accordingly, try so far as possible to keep them in the open air surrounded with trees, plants, animals, places that they can explore, pools in which they can paddle, and sandpits in which they can dig.⁽¹⁾

MOTOR AND SENSORY DEVELOPMENT

(53) *Motor Development.*—The most patent characteristic of the child at this stage is his great capacity for muscular activity. In the main, the muscles which are brought under control during this stage of development are the larger, rather than the finer, muscles, and particularly the mechanism of locomotion. It is most important that children should be allowed to toddle, run about, clamber and climb as much as they wish. Facilities should, therefore, be afforded to children under the age of five to move about freely in safety.

Some of these activities involve very delicate movements and extremely fine muscular co-ordinations, for instance, those concerned in adjusting the two eyes for binocular vision and those involved in adjusting the various organs for speech. It should be noted that, although these are highly skilled actions, they do not require to be directly taught.

Sensory Development.—Between the ages of two and five the child is gaining knowledge about the world around him through his senses, and is learning to exercise these senses in themselves. In human beings the sense organs of highest cognitive value are the eye, the ear, and what is commonly called "touch" (which is mainly muscle sense). The child's constant desire to look at things, and to handle them, finger them, and even pull them to pieces, should be restricted as little as possible. In the home the objects which the child can explore and handle freely are often limited. *In school children should be surrounded with objects and materials which will afford scope for experiment and exploration.*

Recent research has shown that in young children the more primitive senses afford pleasures which are far more intense than those experienced by adults. The infant is more eager to smell and taste than the older child, and as Madame Montessori has shown, he can often acquire a clearer perception of shapes and textures through touch and the muscle sense than through vision. The higher senses, particularly the eye and ear, require opportunities for "sense training". Careful

(1) see chapter VI, § 90.

experiment however has shown that what is true of the muscles, is not true of the senses ; merely to exercise the senses does not in itself suffice to strengthen or train them. Indeed, after the first few months of life it would appear that the chief need is to teach the child to discriminate what was previously unnoticed or confused, and to assist him to perceive what is to be learnt. It is only possible to ascertain by careful experiment which of these tasks are most appropriate. The essential principles are to keep well within the range of the child's spontaneous interests and to give variety and meaning to his sense-perception. Small differences are unnoticed until they have been repeated in differing contexts and have acquired a meaning for the individual child.

IMAGINATION AND THOUGHT

(54) It is a mistake to regard the mental life of the child at this stage as wholly immersed in movement and sensation. The older division of growth into well marked stages is misleading in so far as it implies that the inner life of thought and fancy develops only after the sensory and motor stages. From the beginning the child not only moves and perceives, but feels pleasure or pain in his actions and their results. Until he has acquired sufficient language to enable him to think conceptually, his mental processes are mainly concerned with feelings or fancies, and his thinking remains imaginative, rather than logical, until he has attained the age of six or seven. It is more concerned with the avoidance of pains and the satisfaction of impulses and desires than with rational inquiry or systematic planning. This is the reason that children's play consists so largely of "make-believe" and that fairy tales appeal to them. Most British psychologists would welcome the inclusion of fiction and romance in the teaching given to young children, but it is important that the world of fancy should not exclude the world of reality.

The value of conversation about what the child sees and hears cannot be over-emphasised. It helps to fix his attention and to clarify his thoughts, and stores his mind with ideas on which he can draw on future occasions.

EMOTIONAL DEVELOPMENT

(55) The intensity of the child's emotional life reaches its zenith towards the end of the third year. Never again, except in early adolescence, are emotions experienced so fully and

vividly. In its quick changes and shifting colours the child's life at this period is kaleidoscopic. With the utmost inconsistency he turns from laughter to tears, from affection to hostility, and back again. Soon, however, the first acuteness of these conflicts begins to diminish, and the child slowly learns to integrate his clashing emotions into more temperate and stable relations. When children go to school at the age of three they generally show a tendency to cling to the grown-ups for attention and shelter, but by the middle of their fourth year they begin to display an interest in other children, and learn, not indeed to play with them, but at least to play among them. Social and gregarious tendencies have not yet emerged to any considerable extent. Hence when groups form spontaneously among children of this age they are usually quite small groups; two children, or three or four at the most, tending to play together. Even these little groups, however, tend to break down at any moment through an outbreak of childish quarrelling. This is the opportunity for the tactful leadership of a sympathetic adult, under whose care the group feeling may be sustained with greater stability than if the children were left wholly to themselves. By allowing the child to gain in this way greater confidence in himself, he will quickly learn to trust other children, and by the end of the fifth year should become more and more stable in his emotional life. Friendships with other children tend to wean him from his exclusive dependence upon adults.

PART III.—THE GENERAL MENTAL DEVELOPMENT OF CHILDREN BETWEEN THE AGES OF FIVE AND SEVEN.

(56) *The development of elementary psychological capacities : Sensation.—Touch.*—In the sense of touch the young child shows noticeable superiority, which is still manifest at the age of seven. Ordinary laboratory tests indicate that the child of seven is about twice as sensitive in this respect as the adult. Girls are usually more sensitive than boys. The delicacy of the fingers has never been actually measured in children at or below the age of seven, but it would probably exhibit the same sensitivity as the rest of the skin.

Muscle Sense.—In muscle sense also children show comparatively great delicacy. Professor Spearman in his earlier researches with laboratory tests concluded that “younger children are almost equal to older children in this respect, and both are not far from adults.” Later investigators, however,

have found that muscle sense gradually improves with age. It is probable that in the finer muscles of the body, e.g. those of the fingers, the sensory acuity of children at this age is not so marked as at later stages of development. In the larger muscles children can probably rely as much on muscle sense as adults. In this respect boys appear to be superior to girls.

Hearing.—Tests of pitch-discrimination indicate that at the age of six or seven the sense of hearing has not reached its maximum power. Some competent investigators, however, suggest that the results of these tests may be due to improvement in intelligence rather than to improvement in sense-discrimination as such. Even at the age of five some children exhibit remarkable powers of discrimination. The appreciation of rhythm is more acute than appreciation of melody or harmony.

Vision.—Visual discrimination is in some ways unexpectedly poor in early childhood. In general, it may be said that at the age of seven nearly 80 per cent. of children are long-sighted (hypermetropic) and about 2 or 3 per cent. short-sighted (myopic). During subsequent years long sight diminishes, and short sight noticeably increases, but hypermetropia is more difficult to detect than myopia. Thus in early childhood the eye is an imperfect organ, naturally under-focussed and ill-adapted for close work or fine discrimination. *It is therefore most important that children under the age of seven should not be expected to read small print or indeed to do any close work for long periods.* It seems to us important that school doctors and teachers should point out to parents that the correction of various defects in the vision of young children by means of spectacles does not necessarily involve their permanent use. Indeed, in some instances the early use of glasses is the only way in which to avoid their permanent use in later life.

MOVEMENT

(57) *Strength.*—The child of seven is still weak in muscular strength. With the tests ordinarily employed his strength of grip at the age of seven is about ten kilograms ; by the age of twelve it is doubled ; and by the age of twenty-one it often amounts to fifty kilograms. Girls are slightly weaker than boys, though the sex difference is not so pronounced as at later ages.

Speed of Movement.—In rapidity of movement as distinct from strength, the younger child does not show noticeable inferiority to older children. For instance, in 30 seconds a

child of seven can make about 140 taps, whereas at the age of twelve he can make about 170. Girls are only slightly, if at all, inferior to boys in speed of movement.

Accuracy of Control.—Sufficient data are not yet available to determine the degree of improvement in manual or muscular skill throughout the period of childhood. Several investigators, however, have observed a remarkable gain between the ages of six and eight. In general, it may be said that by the age of six the child has acquired fairly accurate control of the larger muscles, but control of the finer muscles does not exhibit very noticeable improvement till about the age of eight. *It is accordingly important that during the earlier stages of childhood attempts to develop muscular control should be directed mainly to that of the larger muscles and that fine work with hands and fingers should not be expected.* This lack of delicate control is noticeable not only in the movements of the hands, but also in those of the eyes and vocal organs. These in particular are liable to be upset by anything that disturbs the child's nervous balance. Childish impediments such as lisping and stammering are not uncommon at the age of six or seven. Later they rapidly diminish. Left-handedness and right-handedness respectively are well established at a very early age, and these tendencies appear to be in part hereditary. It is, however, difficult to determine how much is due to the congenital factor and how much to early training and obscurer factors. It is generally believed that if a teacher forces a left-handed child to use his right hand, the child may begin to exhibit signs of nervous instability which may in some cases lead to stammering. If the teacher uses indirect and tactful methods, these symptoms are not likely to develop. But certainly during the past twenty years teachers in infants schools have been less prone to insist upon the use of the right hand for left-handed children, and this has led to an apparent increase in the number of such children.⁽¹⁾

Rhythm.—At this stage the child's movements often tend to assume a rhythmic form. More advantage might be taken in infant schools of this sense of rhythm.

⁽¹⁾ Our psychological witnesses informed us that no problem is so often referred to psychologists in connection with children under the age of seven as that of left-handedness. Suggestions regarding ways of dealing with left-handedness and with "mirror-writing" will be found in Dr. Cyril Burt's *Manual of Mental and Scholastic Tests*, page 312. See also *The Nature and Treatment of Stammering*, by E. J. Boome and M. A. Richardson (1931).

OBSERVATION AND PERCEPTION

(58) If a child of the age of three be shown a picture of a simple and familiar scene and asked what he sees therein, he can, as a rule, only enumerate the items. By the age of six, however, the same child may begin to describe what is going on in the picture and will probably use significant verbs as well as nouns in his description. By the age of seven he may mention the colours and even refer to the space relations shown in the picture. Other attributes, however, for instance those of size and of number, he will rarely notice till two or three years later, and he will not, as a rule, try to explain the situation in the picture as a whole in terms of motive or cause, till he has reached the age of eleven or twelve.

One common test for children of the age of seven is that devised by Binet. The child is shown pictures of familiar objects with essential parts left out, and by the age of seven he will nearly always discover what is missing. If he be actually confronted with comparable objects, he will often, when asked, be able to distinguish the more salient differences. To discover similarities, however, is a harder task, and the ordinary child seems, as a rule, unable to express them in words till he is a year or two older than seven. At this stage the child's intellectual activities and most of his direct learning depend on the exercise of the sense-organs, particularly those of sight.⁽¹⁾ These sensory activities, however, are closely bound up with actual movement. When a child has attained the age of six, his attitude resembles that of the artist rather than that of the scientist, being synthetic rather than analytic. He takes in general impressions and grasps things as a whole, but requires definite help if he is to compare and to discriminate. The power to relate objects one to another, and to an underlying hidden or abstract cause, is only just beginning to emerge. Out of this kind of practical observation the child's higher intellectual activities will gradually evolve. His ideas, thoughts, and imagination grow mainly out of what he sees, handles, and does, and in this process language will become more and more important. To know the name for an object is an invaluable aid towards singling it out from a complex context, and still more valuable for evoking it in memory. At first the child's thoughts and memories will remain imbedded in

(¹) Touch and muscle-sense are still important, though perhaps not so important as at an earlier age. Smell and taste are, as a rule, less used than they were before the age of three.

the actual experience in which they first arose. Only by degrees will he be able to detach and abstract them, and so advance to a stage at which he is able to rearrange his own ideas. It should be borne in mind that words mean nothing to the young child unless they are definitely associated with active experience. *The right choice of words, therefore, forms an essential part of his instruction at this stage.*

HIGHER MENTAL PROCESSES

(59) *Reproductive Imagination*.—Comparatively little is known about the higher mental capacities in children under the age of seven or eight, since it is extremely difficult to carry out accurate tests. It is certain, however, that from the age of eight at least, if not indeed at earlier ages, most children possess excellent visual memories. It is probable that most children by the age of seven do a great part of their thinking in concrete visual terms.⁽¹⁾ It is only at a later stage that they gradually learn to think in terms of words. There is some evidence indicating that, below the age of about six, children may perhaps think almost as much in terms of muscle sense—in terms of feeling, and touch, and movement—as in terms of visual qualities.

Constructive Imagination.—The stage of predominating phantasy comes to an end in children about the age of seven. There are dangers in phantasy, but at the same time many psychologists are now disposed to think that the infant school often does not make sufficient use of it. *Scope should still be afforded for "make-believe" in the children's play, but their fancy should not be over-stimulated, and should be brought increasingly into contact with the universe of fact by encouraging them to follow their developing interests among real things.* On the other hand it is most undesirable that phantasy should be wholly ignored or repressed.

Memory : Attention : Reasoning

(60) It has often been claimed that the mechanical memory of the young child is superior to that of the older child and even to that of the adult. Careful tests have shown that this notion is erroneous. The younger child learns more slowly and forgets more rapidly than the older child. The real difference

⁽¹⁾ There are, however, children whose visual memory is distinctly poor, and in such cases recourse might be had to auditory memory and to the sense of touch.

between them is that, owing to the young child's undeveloped reasoning power, he relies more on mere mechanical retention. The small child will readily learn songs, jingles and simple rhymes, but it is undesirable to begin too early to encourage him to memorise such things as arithmetical tables.

(61) Attention is closely related to memory, and part of the young child's difficulty in committing certain things to memory is due to the fact that his power of concentration is very limited. For instance, many teachers will have observed that a child of the age of six or seven will rarely remember all the items in an order containing four commands, even if that order be repeated several times. It accordingly follows that *the ideas presented to a child at or before this stage must be very simple and few at a time*. The child's power of sustaining attention at the age of six or seven is still weak, and hence *oral lessons should be short, and closely related to his practical interests*.

(62) There has been a tendency in the past to under-estimate the small child's powers of reasoning. Recent investigations have shown that by the age of seven a child can answer simple syllogistic problems and is capable of dealing with simple inductive arguments in the strict sense of the word "induction", i.e. eliminating inconsistent hypotheses, and so discovering the only right solution.⁽¹⁾ At this age the child still finds difficulty in dealing with abstract ideas, and is only beginning to understand the relation of objects in space, while problems in time, except the simplest, are beyond his grasp. Moreover the ordinary child of seven has only the vaguest notion of the relation of cause and effect; but, as Dr. Susan Isaacs has shown, this disability seems to depend largely on the fact that the ordinary child has had no chance or occasion to think out problems in physical causation in the world around him.

EMOTIONAL DEVELOPMENT

(63) At this stage of emotional development the child begins to turn from his parents and even from adults generally, and to find his chief source of interest either in other children or in the objects of the outside world. A feeling of comradeship with his playfellows begins to develop, which gives him

⁽¹⁾ Cf. J. Piaget. *Le jugement et le raisonnement chez l'enfant*, Neuchâtel, 1924, which contains an interesting discussion of the development of reasoning in children at this stage.

a greater sense of confidence and independence. Adults should realise that this detachment is a necessary phase if a strong and independent character, free from neurotic dependence, is to be gradually built up. The fact that the child now begins to conceal his emotions, indicates that he is learning, or at any rate trying, to control them. Up to the age of about six, the whole pattern of the ordinary child's social life tends still to repose on the relation of parent and offspring, that is, of authority and obedience or disobedience. He treats his dolls and other children in the way in which he imagines his parents have been treating him. Hence, small children, both in their moral judgments and in their notions of just punishment, are far more severe than they are in later years. Weak in his relations towards adults, the child up to the age of six is often inconsistently tyrannical in his relations towards children younger than himself. Those moral values which depend on the recognition of the rights of others develop gradually with the child's increasing independence of his parents from about the age of six, but for some time these values will necessarily remain concrete, immediate and personal. It is clearly undesirable to talk to children too much in abstract ethical language.

CHAPTER IV

AGE LIMITS AND ORGANISATION OF THE
INFANT STAGE OF PRIMARY EDUCATIONTHE LOWER AGE LIMITS FOR (a) OBLIGATORY, AND
(b) VOLUNTARY ATTENDANCE

(64) Since the passing of the Elementary Education Act, 1870, the lower age limit for compulsory attendance in England and Wales has been fixed at five. School attendance bye-laws may provide⁽¹⁾ that parents shall not be required to cause their children to attend school before the age of six.⁽²⁾ In view of this provision, and of the fact that the attendance of children at school from the age of five has on the whole worked well in practice, *we think that there is no good reason for modifying the existing law.*

As regards the question of the lowest age at which children may be admitted on a basis of voluntary attendance to infant schools *we think that the practice of admitting them should continue as at present, and that the arrangement which has been in operation since 1872, under which no grant is paid in respect of children under the age of three, is sensible and reasonable.* In this respect "nursery classes" differ from nursery schools, since the latter may admit children from the age of two. In a nursery school, however, more complete provision is possible for the training and nurture of very young children.

CONTINUITY IN PRIMARY EDUCATION: THE AGE
FOR TRANSFER TO THE UPPER STAGE OF
PRIMARY EDUCATION: CO-OPERATION
BETWEEN THE TEACHERS IN INFANT SCHOOLS
AND THOSE IN THE UPPER PART OF PRIMARY
SCHOOLS: SEPARATE INFANT SCHOOLS

(65) It is of the greatest importance that the primary stage of education (i.e. from the beginning of school life to the age of eleven) should be regarded as one continuous whole, and that there should be no abrupt break in the education of children under and over seven, and still less in the education of those under and over five.

⁽¹⁾ Section 8 (4) of the Education Act, 1918, re-enacted in Section 46 (4) (c) of the Education Act, 1921.

⁽²⁾ This is subject to the proviso that the Board of Education, in considering whether approval shall be given to any such bye-law, "shall have regard to the adequacy of the provision of nursery schools for the area to which the bye-law relates" (see Introduction, page xiv).

Within the infant stage there is, as we explain at some length in chapters V and VI, a differentiation between the training and teaching given to children below the age of five in a separate nursery school or in a nursery class within the infant school, and the training and teaching of children between the ages of five and seven *plus*. At present the change from the nursery school or class to the ordinary work of the infant school is sometimes too abrupt, both in the general character of the activities and courses of instruction, and in the methods of teaching. *All reasonable means should be adopted to ease this transition.* Continuity in teaching is secured more readily when the education of children under the age of five is given in classes which form an integral part of the infant school, and not in separate nursery schools.⁽¹⁾ Nevertheless, for reasons which are stated elsewhere in this Report,⁽²⁾ we think that the nursery school should be developed separately.

We discussed in section 58 of our *Report on the Primary School* the psychological evidence bearing on the most suitable age for transferring pupils from the infant school to the upper stage of primary education. From the psychological point of view, any marked change in teaching methods is injurious to a sensitive child and may lead to depression, timidity, nervousness, and even to open rebellion. If, however, the existing difference between the teaching methods in vogue in the infant school and in the upper part of the primary school be carefully shaded off, there is no reason, based on psychology, why promotion should not be made at some time between the ages of seven and eight. Our witnesses pointed out that even though the more formal work in the upper stage of primary education is now to some extent anticipated in the top class of the infant school (commonly called the standard class or "standard I"), yet the methods of teaching employed in the classes to which the children are transferred on leaving the infant school should not diverge too abruptly from those hitherto used. Any noticeable discontinuity in methods of teaching, discipline, and general treatment, may seriously delay the progress even of gifted children, who indeed are often peculiarly sensitive to such changes. The head teachers and staff of the upper part of the primary school usually visit the infant departments in order to see the children who are

⁽¹⁾ see chapter V, § 75.

⁽²⁾ see chapter V and chapter VIII.

shortly to be promoted ; they have conversations with them, and afterwards discuss their attainments, aptitudes, and tastes with the “ infant ” teachers.

We reaffirm recommendation No. 6 in our *Report on The Primary School* as to the importance of making the transition from the general treatment and methods of teaching in use in infant schools to those in use in the next stage of primary education easy and gradual.

Where there are separate schools, and not merely separate departments for infants, means should be adopted to bring the teachers together from time to time ; joint staff meetings will be found necessary in order to ensure that free methods of teaching and discipline are continued, and that suitable periods for out of door studies and relaxation are allowed in the classes of the primary school which the children will enter on leaving the infant school.

We assume these conditions in *reaffirming the opinion expressed in our Report on the Primary School*⁽¹⁾ *that children should be promoted from the infant school or department not later than between the ages of seven and eight.*

In this country it has been the custom to deal with the lower stage of primary education (five to seven *plus*), where the number of children so permits, in separate schools or departments,⁽²⁾ and in our *Report on the Primary School* (pp. 62–68) we discussed fully the arguments for and against this traditional system of organisation. It is unnecessary to recapitulate in detail the various arguments ; we will only point out that the following considerations may be urged in favour of separate infant schools :—

- (i) The training given in the best infant schools is very largely dependent upon the general tone and atmosphere of the school, and it is found in practice that this tone and atmosphere is difficult to maintain when older children are present.
- (ii) The difficulty of a common playground for infants and children over seven, in cases where the playground space is so limited as to render it necessary for all children to use it at the same time, is serious ; the free movements of the infants may be interfered with by the older children to their common danger.

⁽¹⁾ See *Report on The Primary School*, §§ 53, 55, 58 and 63.

⁽²⁾ We use the term “ school ” or “ department ” to mean an educational unit, usually consisting of three or more classes, which is under a separate head teacher.

- (iii) The older children in a good infant school (particularly about the age of seven), often display a notable spirit of independence and initiative owing to the fact that they are in the top class. In a primary school containing children between the ages of seven and eleven the younger children could hardly occupy such a position, and the tonic effects of this arrangement would be lost. Furthermore, from the point of view of the physical and mental development of young children, and on general educational and administrative grounds, a strong case can be established for the accommodation of children over the age of seven in distinct departments or schools, when the numbers justify such an arrangement.

THE ORGANISATION OF THE LOWER STAGE OF PRIMARY EDUCATION

(66) *We reaffirm the recommendation which we made in our Report on the Primary School that in areas where it is possible, there should be separate schools or departments for children under the age of seven*⁽¹⁾. As regards schools in rural parts of county areas, we recognise that it would be wholly impracticable, owing to the small numbers of children, to establish separate departments for pupils below the age of seven *plus*. We think however that in all primary schools containing children up to the age of eleven (including even small rural schools) there should be a well defined line of demarcation between the younger and older children. In dealing with the staffing of schools⁽²⁾ we refer to the means whereby this demarcation may be secured.

Although there are some problems which are peculiar to the rural school, the points of difference between urban and rural schools have frequently been over-emphasised; the fundamental problems of organisation and teaching are common to all infant schools, whether urban or rural. We assume that under the general re-organisation of public elementary schools, the "all-age" school will disappear. In the towns the characteristic primary school emerging from this re-organisation will be a school which is arranged in departments under separate head teachers for children up to seven *plus*, and

⁽¹⁾ In one large urban area primary schools for children between the ages of five and eleven have been established alongside a system of separate infant schools.

⁽²⁾ Chapter VII, § 107.

from seven *plus* to eleven *plus*, respectively. In country districts, on the other hand, the typical unit will eventually be a primary school which contains all the children up to the age of eleven. The infant class or division⁽¹⁾ will form an integral part of such a school, and it is in this connection that the problems peculiar to the rural school arise.

Owing to the composite character of the groups or classes in a small primary school, it is a matter of great difficulty to organise a progressive course of instruction. So few children will fall within any given age range or grade of capacity, that it is impossible to staff the smaller schools on the basis of a separate teacher for each grade. The fact that children of varying ages and ability have usually to be grouped together would render the task of teaching them sufficiently arduous even for a skilled teacher. In chapter VII we deal with the staffing of the different types of small school which contain only an infant class or division. At present many of the assistant teachers in such schools are untrained, particularly those placed in charge of the infants.

We have collected a large body of data from teachers in rural schools describing the internal organisation and methods of training and teaching employed, particularly for the infant class or division. The general impression which we have derived from these memoranda and other documents is that teachers in schools which have been converted into primary schools for children up to the age of eleven are developing a technique and a type of organisation calculated to produce good results. Transfer from the infant class or division usually takes place at the age of seven or eight, though the varying number of entrants from year to year determines in some degree the age of transfer, since classes have to be kept fairly equal in size.

THE INTERNAL ORGANISATION OF THE INFANT SCHOOL : CLASSES : GROUPS : SETS : INDIVIDUAL WORK

(67) The framework of the internal organisation of the infant school (like that of the schools for older children from the Lowe Code of 1862 onwards) has been based on a classification of children by age. The school is organised in classes,

⁽¹⁾ We use the term *division* to mean an infant group consisting of more than one class, which is not under a separate head teacher. Although an infant division thus forms part of a larger unit, the principal teacher will necessarily be certificated, and her post will be one of special responsibility (see chapter VII, § 107).

each containing children of the same chronological age—those under five, those aged five years, those aged six years, and so on. If the school is sufficiently large to require more than the minimum number of classes, the additional classes still fall within the same framework and there are “parallel” classes for each year of life. Each class or group of “parallel” classes was for long treated as a unit for purposes of syllabus, and each class was taught as a whole. This framework still governs the organisation of the great majority of infant schools.

As the ideas which derive ultimately from Froebel and his followers, from Dewey, from Montessori and the modern exponents of child psychology, began to exert more and more influence on methods of training and teaching in infant schools, the traditional conception of the “class” and its function has been modified. The class remains the unit for purposes of staffing and registration, but for training and teaching has become a less rigid entity. While the convenience of the class as a single teaching unit for many activities of the school—games, singing, dancing, story-telling, etc.—is realised, its appropriateness for other important activities is no longer admitted.

This is specially true of those activities which consist in mastering some form of skill, such as reading, writing and calculation. The old-fashioned method of class teaching was essentially a method of mass instruction. The teacher had first to decide what was practicable for the average child in her class, and then proceeded to teach this to the whole class. For the quicker children the lesson was often unnecessary, for the slower it was often premature. When teachers began to take account of the individuality of children and recognised that progress is an individual matter and that each child has his own appropriate rate of progress, they began to question the efficacy of class instruction and to look for something better. Some teachers have abandoned formal teaching almost entirely, and treat their classes as a collection of children, each of whom is working at his own pace and in his own way. They move round the class and deal with each child's difficulties in turn, and give them individually the teaching that is necessary when the opportunity offers and the child is ready for it. Others realise that in a large class there will always be a group of children more or less at the same stage and they collect these for a short lesson when they need it. Here the group is a fluid organisation and the members of the

group change frequently. This division of the class into smaller groups is adopted in the majority of infant schools, and obviously is more economical of time and effort than the purely individual method. But the problem how to deal best with children individually has probably no simple solution, and most teachers find that they succeed best with a composite method in which class, group, and individual training and teaching each play their part.

We quote the following passage from the memorandum which the headmistress of a large infant school in a midland town prepared for this committee :—

“ With regard to methods, my experience is that the best results are obtained by judicious mixtures of three methods :—(a) class teaching, (b) individual work, and (c) group teaching. Class teaching is useful when presenting some new rule or when a collective correction of given exercises is being made. Whole-time class teaching would mean that the bright children would mark time and the dull and lazy children would be left behind. Scope for individual work is very necessary for the bright child who is sufficiently intelligent to make definite progress when he is given the chance to work alone. When the individual method is applied in large classes of 50 children it is almost physically impossible for the teacher to do it conscientiously, and, as in whole-time class teaching, it is probable that the very dull and the very bright children will be comparatively neglected. The division of the class into groups of children of much the same ability is the method which produces the best results, but it is a difficult matter to divide children of the same age, say six years, into groups according to ability ”.

A further experiment in organisation which has been tried in some urban infant schools affects the composition of the class. In this system the class no longer consists of children of approximately the same age, but contains children of all ages. This method of classification, sometimes called “ vertical ” classification, is that which has perforce to be adopted in the smaller rural schools. We discuss its use in the larger schools in some detail in chapter VI.⁽¹⁾

In infant schools to which children are not admitted until they have reached or are approaching the age of five, it has sometimes been found convenient to organise what has been

⁽¹⁾ section 99.

called a "reception" or "admission" class. This class provides for children coming fresh from home an introduction to school under "nursery" conditions. The period of initiation, during which the children are kept under close and kindly observation before being placed in an appropriate class in the main school, may last for a few weeks or for a whole term, or even longer. The early signs of retardation may sometimes be detected here, and children who come from an unfavourable environment can be trained in social habits, and thus better fitted to take their part in the general life of the school. The classroom assigned to the "reception" class is usually larger than the ordinary classroom, so that the children may have ample room in which to play and move about. The equipment of the classroom and the toys and educational apparatus supplied closely resemble those of the nursery class.

RETARDED CHILDREN IN THE LOWER STAGE OF PRIMARY EDUCATION

(68) We discussed at some length in chapter VI of our *Report on the Primary School* (1931) the problem of retarded children between the ages of seven *plus* and eleven *plus*. The opinion of psychologists, based largely upon the use of standardised tests of intelligence, was that as regards innate mental capacity differences between children increase in almost direct proportion to their age. On this view, throughout the child's school life, the ratio of his mental age to his chronological age seems to be fairly constant; the child who is backward by one year at the age of five will probably be backward by two years at the age of ten.

Thus, the limitations of the retarded child are not so conspicuous at the infant stage of primary education as at the age of eleven or later. Nevertheless, it is clearly important in the interest of these children that the main causes for their retardation should be discovered at as early a stage as possible in their school career. It has been found especially desirable that the head teacher should, wherever possible, become acquainted with the parents of the children, with a view to remedying any cause which may be connected with home conditions. The child guidance clinics, which are now organised in some urban areas, also may render valuable assistance.

A hasty diagnosis must, however, be carefully avoided, and segregation of dull and backward children has not,

as a rule, been found necessary. Most of the infant teachers who gave evidence to us were agreed that it was generally more beneficial to the retarded children (except in cases of definite imbecility) to keep them during the infant stage with other children of their own age. In small infant schools, and in infant classes of primary schools, retarded children are able to make considerable progress owing to the application of the group and individual methods of teaching described in section 67. In some large infant schools separate classes for retarded children have been organised; one of the main objects of this has been to ensure that such children are taught under open-air conditions.⁽¹⁾

Our evidence supports the view expressed on page 36 of the Board's *Handbook of Suggestions* (1927), that "the question of classification does not, as a rule, become urgent before the backward child has passed out of the infants' stage. Whilst such children often receive special attention individually, it is rarely necessary to form a separate class for those who are backward."

School records, to which reference is made in the following section, will provide information that should prove of great help in detecting the early signs of retardation, and in giving appropriate treatment to retarded children of different types.

We emphasise the importance of detecting early signs of retardation in children and of discovering the causes. We consider that separate classes or departments for retarded children in the infant stage are not necessary on educational grounds.

(¹) The head teacher of a large infant school in a midland town describes an open-air section for children between the ages of five and six as follows:—

"The authority has recently provided a room with folding windows on three sides. It accommodates 36 children specially selected from all sections of the school who are retarded for various reasons. This arrangement is of great use since not only do these children benefit by individual special treatment, but the several class teachers are relieved of those backward scholars for whom they are unable to spare adequate attention in teaching their large classes. In this open-air section the time table and routine are different from that in ordinary school life, individual work is done and the older children talk to and help the younger children. Drill and singing games are taken out of doors every morning and there is a musical lesson in the open air every afternoon. The sessions are short and many of the children rest for an hour each afternoon. They concentrate on reading, writing and composition (oral and written) and omit all arithmetic until their reading is fluent. The furniture consists of small tables, chairs and boxes and the underlying idea of this open-air section is to get at and to influence the individual child. The children from this class meet for assembly with the other children once a week and enjoy "breaks" with their schoolfellows and also enter for all inter-class singing competitions."

SCHOOL RECORDS AND MEDICAL RECORDS

(69) The efficiency and smooth conduct of an infant school which is working under modern ideals and conditions will be greatly assisted if records are kept of each child's general development. While we deprecate any attempt to insist on keeping elaborate records, *we consider it very important that some simple forms of record should be regularly made.* Two forms of record are necessary :—

(a) *Class records of children's work and progress.*—In the past teachers were required to keep a daily or weekly diary of their class lessons from which it was possible to follow the orderly treatment of the prescribed programme, and to gain a general idea of the attainments of the class as a whole. Now that the class has ceased for many purposes to be the unit of training, and classes are divided into groups for various purposes while children spend a considerable proportion of their school time in individual work, these diaries have declined in value, and experience has shown that something more is wanted. If the teacher is to keep in touch with the personal work of each child under these conditions, some method of recording this work must be devised. A simple form of chart on which the teacher, or the child himself when he is able, can record the completion of a definite step in progress, is all that is necessary.⁽¹⁾

(b) *General records of children's development, etc.*—In addition, it is important to keep a record for each child containing the salient facts of his mental and physical growth. On this form his attainments and mental development will be entered at the end of each term, or when he is promoted to a new class. In addition, the form should record any facts of importance relating to home conditions, physical disabilities, and peculiarities of temperament. This form should be passed on to the teacher of his new class, and when he enters the upper section of the primary school, it should go with him. The practice of passing on such records already obtains in many schools, and these short notes are not only often of great value to the teacher in the upper stage of primary education, but also assist to smooth for the child the transition from one school to another. In many schools this record takes the form of a card index ; but the exact form in which the necessary information is recorded will naturally vary from school to school.

⁽¹⁾ see also chapter VI, § 102.

Medical Records.—The scientific evidence summarised in chapter II shows the great importance of medical records. All children who, though not attending nursery schools or classes, continue their attendance at welfare centres, or who are supervised by health visitors, should have complete medical records which will be continued on their admission to the infant school. *We think it important that any salient features of the child's physical development, medical history, and home conditions, should be noted also in the teacher's own records. It is essential, however, that when such records are passed on from teacher to teacher any information of a medical character should be treated as strictly confidential.*

CO-OPERATION BETWEEN PARENTS AND THE SCHOOL

(70) A large number of parents' associations have been organised by the teachers in nursery schools and in infant schools. We show in chapter V that in most nursery schools a parents' association forms an integral part of the school.

As a result of effective co-operation between parents, teachers, doctors and school nurses, there has been a marked improvement alike in the health and cleanliness of the children, in the character of their clothing, and in the hygiene of the home. Mothers who belong to a parents' association appreciate advice given by teachers and nurses on the care and upbringing of their children. Our witnesses assured us that in schools where parents' associations have been formed, they are well attended by the mothers, and in some instances also by the fathers. Such associations usually hold meetings once a month, and addresses are frequently given by teachers, school doctors, and other persons who have made a special study of the mental and physical needs of young children. Among the means adopted to stimulate and maintain the interest of the members are working parties, small lending libraries, and visits to other parents' associations. The teachers often devote much time and energy to the organisation of these associations, which create a bond of sympathy not only between the school staff and the mothers, but also between the mothers themselves.

The relations between parents and teachers are peculiarly close in nursery and infant schools. Children are often brought to school by their mothers, and the contacts which not only the teachers but also the doctors and nurses make

with parents by means of associations, "open days", and on the occasion of the medical inspection, are exceptionally numerous and intimate. The character of the school as a social institution, and not merely as a place of instruction, finds expression in this active co-operation and the sharing of common interests.⁽¹⁾

GRANT REGULATIONS

(71) Nursery schools are legally distinct from public elementary schools, and the conditions of grant in respect of them are contained in chapter VIII of the Special Services Regulations. In the case of nursery schools provided by local education authorities, both capital and revenue expenditure rank for grant; in the case of voluntary nursery schools, revenue expenditure only; in both cases the grant is at the rate of 50 per cent. The grant for nursery schools is wholly calculated on actual expenditure, whereas that for infant schools and departments is partially (sometimes up to about 40 per cent.) based on school attendance. Some of our witnesses contended that the expenditure basis of grant assessment, which has been adopted for nursery schools, should be extended to infant schools and departments, on account of the variable character of the school attendance of young children. They considered that under the present system the local education authority was unduly penalised by the accidents of illness and bad weather. The difference in the average attendance for children under the age of seven and over that age is not large, but we think that there is some substance in this criticism, and that the Board of Education might be well advised to make some allowance for the more frequent absences of very young children.

⁽¹⁾ Dr. Arnold Gesell, Professor of Child Hygiene and Director of the Clinic of Child Development at Yale University, told us that in the United States of America it has been realised more and more that in order to remedy and obviate some of the causes of mental retardation in young children, the approach must be made largely through the adult rather than by means of institutional treatment for the individual child. Provision for adult education in the pre-school care and training of young children is now being made in many quarters in the United States. In addition to the establishment of numerous infant welfare centres, facilities for the education of adults in this branch are provided by means of courses of lectures, home economic classes, and conferences for parents.

CHAPTER V

THE MEDICAL SUPERVISION, EDUCATION
AND TRAINING OF CHILDREN UNDER THE
AGE OF FIVETHE PHYSICAL CARE AND UP-BRINGING OF THE
PRE-SCHOOL CHILD AND THE MEANS THAT HAVE
BEEN ADOPTED TO COPE WITH THIS PROBLEM

(72) As we have shown in chapter I, public interest since the beginning of the present century has been much directed to the problem of the general welfare of children under the age of five. Since 1908 when the Consultative Committee first reported on this problem⁽¹⁾, the Chief Medical Officer of the Board of Education has repeatedly drawn attention to various aspects of it. In particular, he has stressed the serious consequences to the general health of young children that are due to the gap in medical supervision between the age when most mothers cease to take their babies regularly to the maternity and child welfare centres, and the age of five when most children enter the infant department of the public elementary school. Although by the terms of our present Reference we are restricted to considering the "training and teaching of children attending nursery schools and infants' departments of public elementary schools", we nevertheless consider it essential, for a right understanding of the whole problem in its sociological perspective, to describe briefly the activities of the organisations working under the Ministry of Health and the Board of Education which affect children below the age of five.

The Maternity and Child Welfare Act, 1918, vested health authorities with powers for attending to the health of young children from birth up to the age at which they attend school, by means of infant welfare centres, health visitors, day nurseries, etc. The general organisation of a maternity and child welfare scheme is based upon (a) home visiting and personal education through trained health visitors, and (b) medical supervision at centres, pre-natal, infant and pre-school. Facilities are also provided for certain institutional

⁽¹⁾ Report of the Consultative Committee on *School Attendance of Children below the age of Five* (1908).

and ancillary services. For our present purpose it is only necessary to describe briefly the activities of the health visitors and infant welfare centres.

Health Visitors.—In 1932 there were 2,708 nurses engaged in health visiting work under local authorities in England; and in Wales, the equivalent of 183 whole time nurses; some in both countries did maternity and child welfare work only, while others were employed during part of their time as school and tuberculosis nurses. The equivalent of 2,083 whole time nurses was available for maternity and child welfare work in England and Wales, and in addition 2,327 visiting nurses, many of whom were district nurses who gave part-time services, were employed by voluntary agencies, working in association with health authorities.⁽¹⁾

Infant Welfare Centres.—In 1932 there were 2,034 infant welfare centres under local authorities in England, and in addition 749 were provided by voluntary associations; in Wales, the corresponding inclusive figure was 291. There was therefore in England and Wales a ratio of one welfare centre to about 13,000 of the population, or of approximately one to every 1,000 children under five years of age;⁽²⁾ the distribution was very unequal; the “welfare centre” map contained many bare spaces. As a rule, the mothers do not bring their children much to the centres after the age of about one year. The “toddlers’ clinics”, however, attract mothers who have no younger infants, while mothers with young babies sometimes bring their older children from time to time to the doctor at the infant consultations. Arrangements are also made for the systematic home-visiting of pre-school children. The Chief Medical Officer of the Ministry of Health, in his Annual Report for 1930, emphasised the importance of this, whether or not separate sessions were held for the children at the clinic. “Regular visits, special centres for inspection, say three or four times a year, and following up whenever required, would do much to detect these incipient ailments (discharging ears, enlarged tonsils, adenoids, squint, rickety deformities) and enable treatment to be obtained at the School Clinic or elsewhere”.

(1) 4,088,100 visits were paid by health visitors to children between the ages of one and five during 1932, as compared with 3,814,437 visits during the previous year.

(2) The number of children between the ages of one and five who attended infant welfare centres was 109,053 in 1932, as compared with 107,770 in 1931.

In general it would appear that, while much has been accomplished for infants up to the age of about one year or even later since the passing of the Maternity and Child Welfare Act, 1918, much remains to be done in many parts of the country to ensure a measure of continuous supervision of the physical health and welfare of children from this age up to the age of five.

On March 31st, 1932, about 157,000 out of the 1,189,000 children between the ages of three and five in England and Wales, i.e. approximately 13 per cent. of the whole, were attending public elementary schools; there were also at the same date 55 nursery schools recognised by the Board of Education which afforded accommodation for 4,520 children between the ages of two and five.⁽¹⁾ For these children medical inspection and treatment was provided through the agency of the infant and nursery schools. In 1932 there were also some 3,726 places available for children under five in day nurseries.⁽²⁾ For the remainder, systematic observation by trained persons was limited to those instances in which the care of the pre-school child had been carried forward as an extension of the infant welfare movement. In some areas that side of child supervision which is undertaken by the health visitor, namely, *home visiting*, has been specially developed. It does not bring each child into direct contact with a doctor, but it does serve to remedy the ill health and subnormality in young children which is definitely

(1) During the period 31st March, 1932, to 31st July, 1933, three additional nursery schools have been recognised by the Board of Education. The total accommodation in nursery schools on 31st July, 1933 was 4,705.

(2) In 1932 there were 102 day nurseries; 19 of these were provided by local authorities, and the remaining 83 by voluntary associations. These day nurseries, which were set up primarily for the children of mothers who go out to work, were originally established by voluntary effort, but in 1914 the Board of Education initiated a system of grants in aid towards their maintenance. The supervision of day nurseries was transferred to the Ministry of Health in 1919 and amalgamated with the maternity and child welfare work. The existing day nurseries vary considerably in size, some taking as few as 17 children, and others as many as 65. Children are admitted from the age of one month to five years, and as a rule remain for the whole day in the day nursery every week day. Three meals daily are usually provided, for which a varying charge, or sometimes no charge at all, is made. The children are bathed, put to bed for a rest, kept occupied, and otherwise cared for. The day nursery is in charge of a matron, who may be a hospital nurse or crèche-trained and she is assisted by one or more nurses and probationers. A visiting teacher is sometimes employed for the older children, but she is not necessarily a certificated teacher. Every day nursery is regularly visited by a doctor.

connected with diet, sleep, and home environment; and cases of physical defect also are by this means referred for treatment to the clinic or welfare centre, or brought to the notice of the parent for treatment by a doctor. Nevertheless, for the large majority of young children there is a hiatus in the national health service, in that there does not at present exist any general means of ascertaining whether the child's care and environment are conducive to healthy development, or of detecting at an early age signs of departure from the normal, and still less of ensuring that preventive or remedial measures are sufficiently available. With the parts to be played respectively by the clinic and the school, we are not here concerned; both should be pressed into the service of the child and its parent; but in country districts where medical inspection and treatment will not be secured for the children in any large measure through the agency of nursery schools and classes, the development of other means for ensuring medical supervision during the critical period between infancy and school age is specially necessary. That such a development would be practicable is already evident from the experience of some local authorities.

NURSERY SCHOOLS

(73) We have already described briefly in section 22 of chapter I the gradual development of nursery schools for children under the age of five from the free kindergartens, from the open air nursery school established by Miss Margaret McMillan and her sister at Deptford in 1911, and from various other voluntary nursery schools which were established before 1918, largely on the lines indicated in the Report of the Consultative Committee on *The School Attendance of Children below the age of Five* (1908).

Legislative power to supply or aid the supply of nursery schools was granted to local authorities for elementary education by the Education Act, 1918. Section 19 of that Act was re-enacted as sections 21 and 119 of the Education Act, 1921, which run as follows:—"The powers of a local education authority for elementary education shall include power to make arrangements for (a) supplying or aiding the supply of nursery schools (which expression shall include nursery classes) for children over two and under five years of age, or such later age as may be approved by the Board of Education, whose attendance at such a school is necessary or desirable for

their healthy, physical and mental development ; and (b) attending to the health, nourishment, and physical welfare of children attending nursery schools ” (section 21).

“ Notwithstanding the provisions of any Act of Parliament the Board of Education may, out of moneys provided by Parliament, pay grants in aid of nursery schools, provided that such grants shall not be paid in respect of any such school unless it is open to inspection by the local education authority, and unless that authority are enabled to appoint representatives on the body of managers to the extent of at least one-third of the total number of managers, and before recognising any nursery school the Board shall consult the local education authority ” (section 119).

The existing legislative provisions regarding nursery schools impose no obligation on parents to send their children to them, and they do not rank as public elementary schools within the meaning of the Education Acts. It will be noted that section 19 (1) (a) of the Education Act, 1918⁽¹⁾ defines the type of children for whom provision may be made in nursery schools, “ which expression shall include nursery classes ”, as those “ whose attendance at such a school is necessary or desirable for their healthy, physical and mental development ”. In practice nursery schools recognised for grant have hitherto been provided only in congested urban areas where the housing conditions are unsatisfactory.

THE GENERAL AIM AND FUNCTION OF THE NURSERY SCHOOL

(74) Our witnesses generally agreed that there were two principal reasons for the establishment of nursery schools : they ensured the adequate medical supervision of children before admission to the public elementary school, and they provided satisfactory conditions for “ nurture ” and education for little children between the ages of two and five.

The objects of the nursery school are set out by Miss Grace Owen in her pamphlet entitled *Education and Nursery Schools* (1930), as follows :—

- “ (i) To provide healthy external conditions for the children
—light, sunshine, space and fresh air.
- (ii) To organise a healthy, happy, regular life for the children, as well as continuous medical supervision.

⁽¹⁾ Re-enacted in Section 21 (a) of the Education Act, 1921.

- (iii) To assist each child to form for himself wholesome personal habits.
- (iv) To give opportunity for the exercise of the imagination and the development of many interests, as well as skill of various kinds.
- (v) To give experience of community life on a small scale, where children of similar as well as varying ages work and play with one another day by day.
- (vi) To achieve a real unity with the home-life.

‘Education by life’ is the only true description of Nursery School education, for formal instruction has no place in it.”

The functions of the nursery school may conveniently be discussed under three heads :—

- (a) The medical or hygienic aspect which is primarily concerned with the physical well-being of the children ;
- (b) the educational aspect ; and
- (c) the social aspect.

(a) The medical or hygienic aspect

The nursery school is distinguished from the ordinary school by the emphasis placed on physical well-being. This is stressed in the section of the Education Act which we have quoted in section 73. It is primarily through hygienic requirements in their widest sense that opportunity is afforded for the training of the child. The social and educational aspects of school life are not neglected, but these aspects are first approached through attention to personal cleanliness and suitable diet, and through abundant opportunities for bodily activities of different kinds.

The great majority of nursery schools provide a mid-day meal⁽¹⁾ and keep the children at school during the greater part of the day. Baths are provided for those children who require them ; but the need should decline, as the standard of cleanliness is raised through the example of the school, and parents are led to do their part so far as home conditions permit. Each child has its own towel, toothbrush, and comb.

(¹) A notable exception is Ardwick Nursery School, Manchester, established by voluntary effort in 1915, which does not provide mid-day dinner, on the ground of the close proximity of the children’s homes and the intimate knowledge possessed by the superintendent of the nutrition received by the children in each home. The hours of attendance at Ardwick Nursery School are accordingly from 9 a.m. till 12 noon and from 1.25 p.m. to 3.30 p.m. It should however be pointed out that one disadvantage of a mid-day interval, unless the children’s homes are very close at hand, is the difficulty of dealing with wet feet in inclement weather.

There are certain aspects of physical care which are common to all nursery schools ; of these the principal are inspections by the school doctor not less than once a term and sometimes once a month ; frequent visits by the school nurse ; the systematic measuring and weighing of the children ; the exercise of great care in the detection and isolation of cases of infectious illness ; and the keeping of a medical record for each child. The children sleep on beds during the early part of the afternoon. One of the great advantages of the nursery school is the opportunity which it affords for the early detection and treatment of defects of the respiratory tract, of the sense organs, and of skin diseases. Moreover, a considerable proportion of the children entering nursery schools suffer from rickets, for which appropriate treatment by means of suitable diet, massage and artificial sunlight can often be provided. The pressing need for preventive and remedial treatment for children below the age of five is well stated in the following passage from the *Report of the School Medical Officer of the London County Council* (1926) :—

“ The School Medical Service is a receiver of damaged goods and spends most of its time and energies in patching them up. What is now required is an intensification of social effort directed to the care of the infant in arms and the toddler before school age, so that children shall come to school in the beginning with constitutions unimpaired and with bodies attuned to receive the mental, moral and physical education which it is the primary function of the school organisation to impart ”.

(b) *The educational aspect of the nursery school*⁽¹⁾

The daily programme of the school comprises a succession of happy and joyous pursuits and activities in which the distinction between work and play disappears. The children work when they think they are playing, and play when they think they are working. The educational influences in nursery schools derive largely from Froebel, Madame Montessori, and Margaret McMillan. Where the Froebelian influence is strong much importance is attached to play, story telling, singing, dancing, nature study and handwork, in all of which the teacher plays a prominent part. Where Montessorian influence prevails the emphasis is laid rather on individual effort, sense training, and the use of didactic apparatus ; the teacher observes and guides, and the children are allowed within a

⁽¹⁾ see also chapter VI, §§ 84–87.

prepared environment and within certain limits to follow their own pursuits. In the best nursery schools the method is eclectic, and combines features drawn from various sources. The pursuits include rhythmic movements, speech training and handwork, and the children usually take great pleasure in all forms of dancing, singing and reciting. The manual activities are of a simple character, e.g. digging in sand pits, building with large wooden blocks, drawing with crayons on brown paper. The activities and pursuits of each day are designed mainly to develop the senses, to guide the imagination and to form right habits. Children rapidly learn not to interfere with other children, not to waste time and not to destroy the equipment provided. By degrees self-control takes the place of external control and the foundations of genuine interest in various kinds of work are laid.

(c) The social influence of the nursery school

The social function of the nursery school has two sides ; it trains the child in right personal and social behaviour and so fits him later to be a useful member of the community, and it also exerts through the child an influence for good on the standards and ideals of the home. The nursery school not only provides suitable environment for the child but also gives him companions of his own age and skill, and sympathetic adults who are able to train him in good habits. Our witnesses stated that in the best nursery schools the capacity that the children show in helping others and the pleasure they take in doing work for the school are always in evidence. They wash and dress themselves, serve and carry food, wash dishes, put away their possessions and look after their pets with care and a sense of responsibility. They learn to give and take, and to carry on their own activities without interfering with others. Through the children the influence of the school reaches the parents. In nearly all the schools mothers' clubs or guilds have been organised. Directly or indirectly the mothers gain through these organisations fuller knowledge of their children's needs and possibilities. In some schools "open days" are held and the parents are interested spectators of the daily round of school activities. The gratitude of the parents is displayed in many ways, for instance mothers help in washing school linen and overalls, and fathers construct toys, and attend to the garden. The sense of parental responsibility is increased, rather than diminished by the attendance of young children at the nursery school.⁽¹⁾

⁽¹⁾ see chapter IV, § 70.

TYPES OF NURSERY SCHOOL

(75) There are several ways in which the nursery schools which have been recognised up to the present by the Board of Education may be classified. From the administrative point of view the most important distinction is between nursery schools provided by the local education authority and nursery schools provided by voluntary bodies: out of the fifty-five nursery schools which up to 31 March 1932 had been recognised by the Board of Education, 30 had been provided by local education authorities and 25 by voluntary bodies. The character of the building, playground or garden affords yet another basis of classification: the earlier nursery schools were usually conducted in adapted houses or cottages; in one instance the buildings consist of a series of army huts. Another basis of classification is that of the facilities which are provided for "open-air" activities. The best known example of the completely open-air nursery school is the Rachel McMillan Nursery School at Deptford, in which the garden is the essential feature and the buildings consist of open shelters.⁽¹⁾ On the other hand, in some of the older nursery schools there is little open space available, and most of the school activities take place within the building. *We regard the provision of open shelters, with a liberal space for a garden-playground, as an essential feature in the design of all newly-provided nursery schools.*⁽²⁾

A distinct type of nursery school has been recently developed in Bradford where the education committee have established joint nursery and infant schools in which the ages of the children range from two to six *plus* or seven *plus*. There are at present six schools organised in this way.⁽³⁾ The types of building vary considerably; some date from 1920 and some were built as late as 1930. In some, the nursery is separate from the main block; in others, classrooms have been adapted under the same roof. In the newer buildings, there is a central quadrangle with the nursery rooms on one side and the infant rooms on the other. In all these schools, whatever the character of the building, the amenities usually associated with the modern type of separate nursery school are provided so far as possible. The general supervision of both departments is in the charge of one head teacher, who is qualified both in infant and nursery school work.

⁽¹⁾ see appendix IV.

⁽²⁾ see also chapter VIII, § 118.

⁽³⁾ A nursery school of this type, Princeville Nursery School, Bradford, is described in appendix IV to this Report.

These arrangements are at present experimental, and it is too early yet to draw conclusions from them. It is claimed, however, that the children pass from the nursery department into the infant department without any break such as may occur in their transfer from a separate nursery school to the lowest class of an infant school. Particular attention is being given to the problem of the transition class.

SIZE OF NURSERY SCHOOLS

(76) When nursery schools were first recognised for grant in 1919, the general opinion was that they should be small, partly in order that they might be homelike, but chiefly that there might be less risk of infectious illness. The Board of Education, in the Prefatory Memorandum to their *Regulations for Nursery Schools* (March, 1919), stated that the ideal number for a school was probably about 40 children, though it might sometimes be necessary to provide for more than that number if the needs of the district were to be at all adequately met. "The Board will, therefore, not refuse to consider proposals for a nursery school providing for as many as 80 to 100 children; but in no case should the number exceed 100". Experience, however, showed that, under careful supervision, the risk of infectious illness was less than had been anticipated, particularly when the children were grouped in separate open-air shelters. The Rachel McMillan Nursery School at Deptford now affords accommodation for 260 children, for whom provision is made in separate shelters,⁽¹⁾ each containing a group of 35-40 children; but the majority of nursery schools remain comparatively small, providing accommodation for 25 to 100 pupils. It is evident that small schools are more expensive to provide and maintain, and though *on purely educational grounds we are disposed to regard a nursery school for 60 to 80 children as of ideal size, we would recommend on economic grounds that, wherever necessary, nursery schools should be planned to accommodate 160 to 180, provided that the children are grouped in units not exceeding 35 to 40.* It is clearly essential that the nursery school should be placed within easy distance of the homes which it is intended to serve, and this consideration in practice imposes a limit on the possible size of the school. On the other hand, it is clearly desirable that the accommodation should not greatly exceed the numbers we have recommended, on account of the difficulties of superintendence which are peculiar to a school containing very young children.

⁽¹⁾ see footnote ⁽¹⁾ page 169 (chapter VIII, § 118), also appendix IV.

THE RELATION BETWEEN THE SEPARATE NURSERY SCHOOL AND THE INFANT SCHOOL OR DEPARTMENT

(77) We hope that the valuable ideas embodied in the nursery school will increasingly be realised within the existing infant school system. Meanwhile it seems highly desirable that the nursery school should be developed separately, and be left free to perfect its methods, and to fulfil its special purpose. The infant school has admittedly suffered in the past from bookish and academic traditions. The nursery school is one means of counteracting these influences, by extending upwards its own special tradition of health, of reasonable freedom, and of joyous spontaneous pursuits. It is true that this new spirit which is found in the best nursery schools is also to be found in its genuine form in very many infant schools. Nevertheless, at the present stage in the development of infant education, the nursery school has a value of its own as an educational instrument. Its position as a social institution, we discuss on a later page.

BABY CLASSES AND NURSERY CLASSES IN INFANT SCHOOLS

(78) It has long been considered necessary in many districts, on account of home conditions and the wishes of parents, to admit children under five. Baby classes may be found in a large number of infant schools throughout England and Wales, and the majority of children below the age of five who are at present attending public elementary schools are accommodated in such classes. Though such children have been admitted in considerable numbers to public elementary schools since the early seventies, the school boards, and since 1902 the local education authorities, have been mainly concerned in making adequate provision to meet the needs of children above the age of compulsory attendance.⁽¹⁾

The provision made for the baby class⁽²⁾ has often been unsatisfactory. Fixed desks are still to be found instead of small movable chairs and tables. The office and lavatory accommodation is often unsuitable. The floor space and the lighting and ventilation are frequently insufficient. The class

⁽¹⁾ see chapter I, § 16.

⁽²⁾ In 1932 there were 157,551 children between the ages of three and five in elementary schools in England and Wales, but we have not been able to obtain statistical data regarding the total number of baby classes.

is often too large, and in some small rural schools the children may have to sit with the older children in a single room. Furthermore, the staffing arrangements have often left much to be desired.

While some or all of these defects may still be found in many baby classes throughout England and Wales, the evidence which we have received from a large number of head teachers of infant schools in different parts of the country indicates that many local education authorities and managers are taking steps gradually to improve the provision for children below the age of five.⁽¹⁾

In the newer buildings and in old buildings that have been remodelled, it is now customary for the young children to have direct access to their room through a cloakroom devoted exclusively to their use.⁽²⁾ The baby-room has been furnished with light tables and chairs and stretcher beds. Cupboards have been lowered, made more capacious, and so constructed that the tops may be used for the exhibition of beautiful or interesting objects. Sometimes the teacher's cupboard has been supplemented by further cupboards composed of small sections. These "pigeon holes" for the school belongings of the children serve to give them a sense of ownership, with an accompanying measure of personal responsibility. Pictures have received more enlightened attention in recent years; they are changed from time to time and are hung where they can be easily seen by the children. Flowers, growing things, and the like, are more frequently found in baby-rooms than formerly. Other school equipment is undergoing change, the nature of which depends largely on the knowledge and convictions of the teacher. In schools where these improvements have been carried out, their general purpose and practical effect have been towards changing the baby class into a nursery class.

The term "nursery class" is frequently employed by teachers and others in a somewhat vague sense to describe a class for children below the age of five in which certain amenities commonly found in nursery schools have been provided. In Manchester, Leicester and several other urban areas in which the local education authorities have taken

⁽¹⁾ A number of local education authorities have utilised for classes for children under five some of the additional accommodation that is now becoming available in many infant schools (especially in urban areas) owing to the falling birth-rate and other causes—see also chapter VIII, § 113.

⁽²⁾ This and like matters are discussed in detail in chapter VIII.

systematic steps to improve the conditions for children below the age of five, the term "nursery class" has acquired a more definite connotation, and means a class consisting, as a rule, of about 30 children under the charge of a qualified teacher who is assisted in most cases by a girl who is called a "student nurse", "probationer" or "helper".⁽¹⁾

For such classes new premises have been built, or old premises suitably adapted. There is a playground reserved for children below the age of five during part of the day, and special sanitary accommodation within the school buildings or accessible by a covered way. There is also washing accommodation which may include baths, and always includes a supply of hot water. The furniture consists of light chairs and tables, and special cupboards. Beds for rest and sleep during part of the afternoon session are provided for all the children. Milk with rusks or biscuits is supplied during the morning, but usually there is no midday meal, such as is given in nursery schools. As we have said, in many classes for children below the age of five in infant schools, some of the amenities described above are found. We think, however, that the term "nursery class" should be restricted to classes like those at Manchester and Leicester, which are fully organised on the lines described above.⁽²⁾

The principal differences between the separate nursery school and the nursery class appear to be : (i) nursery schools may admit children at the age of two, whereas in nursery classes, the age of admission is usually three ; (ii) a nursery school is usually a separate educational unit under its own superintendent, whereas a nursery class forms an integral part of an infant school ; (iii) the provision of mid-day dinner is almost universal in the existing nursery schools, whereas in nursery classes it is the practice as a rule to provide milk with a rusk or biscuit during the morning ; (iv) the nursery school as a rule remains open for longer hours than the nursery class ; (v) medical inspection and treatment of the children is carried out more frequently in the nursery school

⁽¹⁾ In Manchester considerable progress has been made in the provision of nursery classes ; there are now some sixty nursery classes within infant schools in that area each containing from 25 to 30 children. In the county borough of Leicester there are now twenty-four nursery classes in infant schools. Several other urban authorities, e.g. Chesterfield, Leeds, Sheffield, Stoke-on-Trent, Willesden, have established nursery classes of a similar character. Bradford has developed a distinctive type of nursery school (see pages 106-7).

⁽²⁾ Short descriptions of nursery classes organised on these lines are given in appendix IV.

than in the nursery class; (vi) children passing from a separate nursery school into the infant department of a public elementary school experience a break in treatment and methods of teaching—this can be reduced if they pass direct from a nursery class into the lowest class of the infant department within the same school building; (vii) the cost of the provision and maintenance of a nursery school has up to the present been higher than the cost of providing and maintaining a nursery class.

There is, moreover, the important administrative difference that the nursery school is not, from the legal point of view, a public elementary school and is subject to a separate set of official regulations.⁽¹⁾

THE PROBLEM OF CHILDREN BELOW THE AGE OF FIVE IN RURAL AREAS

(79) Most of our witnesses were definitely of opinion that it would be impracticable to establish separate nursery schools in rural areas. On the other hand, a number of classes on nursery lines have been organised in village schools; though it was repeatedly pointed out by witnesses who had a first-hand knowledge of rural conditions that the provision even of a nursery class was generally impossible owing to the small number of young children in the village. It was commonly stated that *children under five years of age can only profit from attendance at school if there is a sufficient number of them to form a group, i.e., to justify the setting apart of a room and a teacher for their special training. We agree with this point of view.*

Our witnesses from rural areas were insistent that increased facilities for attending to the health of the young children in the country were required. To this we have already referred in some detail, and our general conclusion is given in section 81.

THE SOCIAL NEED FOR NURSERY SCHOOLS AND CLASSES

(80) The physiological and psychological evidence which we have received shows the importance throughout the whole of life of correct treatment from the earliest years of childhood. We believe that, where home conditions are good, the best place for the child below the age of five is at home with his

⁽¹⁾ Board of Education (Special Services) Regulations, 1925, chapter VIII.

mother. But during these decisive years some expert advice appears to be essential ; and for the majority of parents this has to be obtained mainly through the public medical service or through the agency of the schools ; the advantage of the school being that the mother is enabled both to obtain advice, and to share her responsibilities with a teacher who is skilled in the care of young children.

Any provision made by the State should be designed to supplement the home and to strengthen the ties between parents and their children. Apart from the educational aspects of nursery schools and classes, they are a remedial agency affording partial compensation for unfavourable home environment, and they should therefore be provided first in districts where home conditions are bad.

One of the chief arguments advanced in support of the view that nursery schools and classes should form a normal part of the State system of education was the importance of securing adequate medical supervision of children between babyhood and school age. The serious consequences of the hiatus in medical inspection and treatment during this critical period could not, however, be remedied through the agency of nursery schools and classes alone, so long as the attendance of the children remains voluntary, and none of our witnesses expressed the view that attendance should be made compulsory. In this respect therefore, nursery schools and classes can only be complementary to that extension of the " child welfare " service which we have elsewhere advocated. On the other hand, the achievements of both nursery schools and classes in the nurture and training of young children are remarkable, and there can be no doubt of the high value of the work they are doing for the children " whose attendance at such a school is necessary or desirable for their healthy, physical, and mental development." ⁽¹⁾ In these cases the provision is essential to remedy the deficiencies of home training, but not equally essential or even desirable in all circumstances.

Bad housing, bad home environment, and economic hardship may be palliated and even ameliorated through nursery schools and classes; but their remedy calls for other action by the State and the local authorities. The provision of schools, whatever be the scale on which it is made, so long as these conditions survive, leaves untouched the problem of the child's early environment.

⁽¹⁾ Education Act, 1921, Section 21 (a).

Nursery schools and classes do not form an integral part of the system of education which is obligatory upon education authorities. We regard the provision of them not as a general but as a particular responsibility. Each authority should consider the needs of their area, regard being had to home conditions and the wishes of the parents, and, after consultation with the Board of Education, should take such steps as seem to them desirable to supply or aid the supply of this form of education.

GENERAL CONCLUSIONS REGARDING EDUCATIONAL PROVISION FOR CHILDREN UNDER THE AGE OF FIVE

(81) The problem of the physical and mental welfare of children below the age of compulsory school attendance is essentially sociological. Any fundamental attempt to solve it must eventually take account of the provision of better housing conditions for large sections of the population, and the consequent improvement in the child's early environment. The systematic efforts which are now being made in the schools to give the older girls some instruction in housecraft and infant care are helping towards a solution of this problem, and in course of time will do much more to help. Among other remedial agencies, it is impossible to leave out of account the invaluable work which is being done by the maternity and child welfare centres, the day nurseries, and similar organisations. In section 72 of this chapter we have attempted to give a brief summary of the activities of these health services. The available statistics show that only about 13 per cent. of the total number of children between the ages of three and five in England and Wales are attending infant departments of public elementary schools or separate nursery schools. It is not possible to say how many of the remaining 87 per cent. are dealt with in any way by the public health authorities. It is, however, certain that the majority do not attend infant welfare centres after babyhood, even when this service has been extended to children below the age of five. It is thus evident that neither the maternity and infant welfare centres, the day nurseries, nor the nursery schools and the classes for children under five in public elementary schools are at present dealing with more than a small percentage of the total number of children below that age.

We have received many suggestions for "closing the gap" in medical inspection and treatment during the years which

intervene between attendance at the infant welfare centre and admission to school. We do not summarise them here because this problem is outside the scope of our reference. *Nevertheless, we desire to take this opportunity of recording our opinion that sufficient supervision of the health of children below the age of five is a pressing need, and we think that the possibility of extending existing services should be explored with a view to providing more adequate facilities for the medical inspection and treatment of such children.*

In general we think that, where the home conditions are good, the best and most natural place for a child below the age of five is at home, particularly if the mother takes advantage of the facilities for regular medical supervision of such children which are available, or may be made available in the future. *We fully recognise, however, that the home surroundings of large numbers of children are not satisfactory and we think that children below the age of five from such homes might with great benefit to themselves, to their parents, and to the State, attend either separate nursery schools or nursery classes within public elementary schools.*⁽¹⁾

We are of opinion that the nursery school is a desirable adjunct to the national system of education; and that in districts where the housing and general economic conditions are seriously below the average, a nursery school should, if possible, be provided. The nursery school should be designed primarily for those children who, by reason of unsuitable environment, require careful attention to their physical welfare, and need to spend longer hours at school and to be provided with meals.

We consider further that, even in districts where the social and economic conditions are more favourable, the establishment of a nursery school may be expected to have a beneficial influence upon other schools, and to provide also a centre in which problems connected with the general development and "nurture" of children may be investigated. *We think therefore that, apart from purely social and economic considerations, model nursery schools for children from the age of two onwards are educationally desirable, and that they should be made accessible to teachers from other schools.*

(1) Many rehousing schemes in large towns will necessitate the erection of flats and tenements. We think that in such circumstances nursery schools or classes with garden playgrounds should be provided for the young children.

Our witnesses were in general of opinion that separate nursery schools met a legitimate need, particularly in congested urban areas where social conditions rendered special provision necessary. We agree with this view. On the other hand, there are areas in which nursery classes within infant schools or departments will satisfy the existing need. *Where children below the age of five are admitted to infant schools or departments, nursery classes should eventually be the normal type of provision.*

We accordingly recommend that each local education authority should survey the needs of their area, with regard to home conditions and the wishes of the parents; and, after consultation with the Board of Education, should take such steps as may seem to them desirable to provide in schools nurture and training for children below the age of five.

CHAPTER VI

THE TRAINING AND TEACHING OF YOUNG CHILDREN IN INFANT AND NURSERY SCHOOLS

I.—INTRODUCTORY

(82) Our reference deals with the training and teaching of children between the ages of two *plus* and seven *plus*. For the earlier part of this period the child belongs to the home, but from the age of five he is under legal obligation to attend school, and for the remainder of the period he belongs partly to the home and partly to the school. It is accordingly convenient to divide our discussion on the proper nurture of young children into two sections: the training and teaching of children before the age of five, and the training and teaching of children after the age of five. This does not mean that the age of five marks any definite epoch in the physical or intellectual life of the child—his growth is continuous and much of what is necessary for the earlier years remains necessary after the age of five—but it marks a development in the attitude of those who have charge of children. Up to the age of five the main consideration in the mind of the teacher is how best to foster healthy growth in the right environment, physical, moral and social, for the proper development of the young life. This consideration remains fundamental after the age of five, though the teacher towards the age of six begins to direct the activities of the child towards the more formal kind of schooling.

(83) The natural and best environment for the child up to the age of five is the home, and his natural guardian is his mother. Economic conditions, however, often oblige the mother to go out to work so that the home ceases to provide the right environment or guardianship. This was early recognised, and it became usual, and in many parts of the country is still usual, to allow children under the age of five to attend the public elementary school in what are commonly known as “baby classes.” The weakness of the baby class hitherto has been that it often does little to provide the right environment for the young child and leads to a premature beginning of schooling. More recently it has been recognised

that other conditions—bad housing, overcrowding, etc.—often make the home an unsatisfactory environment for the young child, and that young mothers often lack the necessary knowledge how to train him. Although we look forward to a steady improvement in housing conditions, and to the influence of the child maternity and child welfare centres in instructing mothers in the care of young children, we recognise that under existing conditions it is often necessary, particularly in large and crowded towns, to establish nursery schools or classes in order to secure, for part of the day at any rate, a suitable environment for the young child. The following section deals in broad outline with the work of schools or classes of this character. These schools, however, only deal with part of the life of the child: he will still spend the greater part of his life in the home: *the training of the nursery school or class must be carried into the home by active co-operation with the parents of the children.* If it is to be fully effective, it must be practised in the home life of the children.

II.—THE NURSERY SCHOOL, INCLUDING THE NURSERY CLASS

(84) *The fundamental purpose of the nursery school or class is to reproduce the healthy conditions of a good nursery in a well-managed home, and thus to provide an environment in which the health of the young child—physical, mental and moral—can be safeguarded.* The younger the child, the more closely are these three aspects of development connected.

(85) Physical health comes first, and attention to the physical well-being of the child will be the supreme requirement. During the pre-school period the young child is peculiarly fragile and liable to infection, and the results of infection are far more serious than at a later age. Experience has, however, shown that with intelligent precautions, both the infection and its consequences may be effectively minimised. During later years inadequate or unwise feeding may render the child temporarily inefficient, but during early life it often leaves behind it permanent defects, mental as well as physical.⁽¹⁾ What is true of bodily development in general is also true of nervous and mental growth during this stage. Most forms of mental deficiency are recognisable before the age of five; and many other defects which the school has hitherto accepted as unavoidable prove in fact to

⁽¹⁾ see chapter II and appendix II.

be preventible during the pre-school period. Most cases of moral abnormality and perversion, of nervous disorder and faulty habit-formation, have their roots in these initial years of life. In all these directions the nursery school gives the doctor and the nurse an opportunity of dealing with these conditions while there is yet time.

But physical health is not only a matter for medical supervision and care. It involves opportunities for free movement, in sunlight when possible, in fresh air always, out-of-doors or indoors, and regular periods for lying down and sleep. It depends also on the regular practice of healthy habits, and it is the duty of the school to give wise training in the practice of those habits that are included under the general term: personal hygiene. The child should learn to carry out the daily events of hygienic routine—dressing, washing, the care of the teeth, the use of the handkerchief, eating and drinking, excretion and rest—as a matter of course. Many of these are activities due to what are called appetitive tendencies, and are concerned mainly with physiological needs. But, as has been said in Chapter III⁽¹⁾, the training must not be obtrusive. If these needs are allowed to remain dominant in the child's mental development, he may become absorbed in his own pleasures and pains. Too exclusive an insistence on the daily events of hygienic routine may easily foster this self-absorption and ultimately warp the child's emotional development. If the practice of hygienic habits is treated without fuss as part of the normal procedure of the school, the child will come to accept it as a natural incident of a healthy life.

(86) The child in the nursery stage, however, needs training as well as care. *But the training must be a natural training, not an artificial one.* What is true of education at every period of child life is true most of all during the nursery period; *its aim is not so much to implant the knowledge and the habits which civilised adults consider useful, as to aid and supplement the natural growth of the normal child.* We may rightly regard the function of the nursery school or class as educational, but we must not regard it as didactic. The aim of the teacher will be primarily to assist the spontaneous unfolding of the child's natural powers. We now

⁽¹⁾ see chapter III, §52. Since the training of the nursery school or class is largely based on what is known of the mental development of the young child, it is inevitable that in this chapter there should be some repetition of what has been said in chapter III.

know that the normal child, if left to himself in a suitable environment, will learn spontaneously a large number of things that it was once supposed he could only learn through deliberate instruction. Under natural conditions, which are the very opposite of those obtaining in civilised town life, the child's everyday surroundings would be full of objects and situations calculated to satisfy the child's natural impulses and so keep him in touch with the real world about him. The nursery school must accordingly endeavour so far as is possible to plant the child in his natural biological environment, to keep him out of doors with plenty of air, sunlight and space, surrounded with trees, plants and animals, with places that he can explore, pools where he can paddle and sandpits where he can dig.

The most obvious characteristic of the tiny child is his capacity for muscular activity. Freedom for bodily movement is accordingly very important. The child should be allowed to toddle, run about, clamber and climb, as much as he pleases. The nursery school should be so planned and arranged that there need be a minimum of restriction in these respects. But although these physical activities should be to a large extent free and unhampered, they should not be entirely aimless. The children should be trained to play together as well as to play alone, to breathe properly, to use their limbs with increasing control, to move quietly when necessary.

During the nursery stage the child is also gaining knowledge of the world about him through his senses, and perfecting the use of his senses as a means of exploring his environment. The child's constant desire to be looking at things, handling things, and even pulling them to pieces, should be restricted as little as possible. The school should surround him with objects and materials which will attract his attention and provide him with scope for experiment and exploration. The school grounds should include little gardens which the children can share in cultivating, and, where practicable, there should be opportunities for stimulating interest in bird and animal life, for example, by means of dove-cotes, bird baths, and the like.

The more primitive senses not only give the very young child far more intense pleasure than at a later age, but are relied on to a greater extent than is generally realised. The infant is more eager to smell and taste than the older child, and often gains a clearer perception of shapes and textures through touch than he can through vision. The higher

senses, sight and hearing in particular, need opportunities for what is commonly known as sense-training. But mere exercise does not train or strengthen the senses in the way that exercise develops the muscles. After the first few months of life the sense-organs themselves are capable of no further improvement. But we can train the child to listen with attention, to respond to quiet questions, and to begin to distinguish between different sounds and to develop a taste for pleasant sounds instead of mere noise. And we can train him to notice broad (rather than fine) differences in colour, form and size, to discriminate what was previously unnoticed or confused, and help him to learn what to look for. Specially devised tasks, with appropriate apparatus, are required. The essential principle in sense-training is to keep well within the limits of the child's spontaneous interests and to give his sense-perceptions both a variety and meaning. Slight differences are unnoticed until they have been repeated in differing contexts and so gained a meaning for the individual child. Toys of all kinds, so long as they are not too obviously educative, play their part here, and the child should be allowed to use them as his fancy directs.

But the young child's mental life is not wholly engrossed in movement and sensation. Long before he enters the nursery school his mental processes have ceased to be entirely perceptual. As soon as he can talk he can think, and has begun to enter a private life of fancy and imagination. Most English teachers disagree with the embargo that Mme. Montessori places on all fiction or romance; although they recognise the child's need to experiment actively with real things.

(87) When the young child enters the nursery school he becomes a member of a group, and cannot be permitted to act as though he were the only individual in the place. There must be restrictions, but these will be determined by psychological, rather than by domestic requirements as may be the case in the home. They will be reduced to a minimum, and kept as far as possible in the background and not be the first object of the training. Here the group spirit will be invaluable. Individual difficulties frequently disappear when the child is one in a group. He will soon subscribe to the daily routine as a matter of course, and will tend to do what everyone else is doing. If at times the routine conflicts with his own private inclinations, other factors will enter in to divert his thoughts from his own likes and dislikes. He will take an

interest in sharing in a common activity, and on social occasions, such as the common meal, his attention is still more upon others and upon the general procedure than upon himself and his own performance.

In applying restrictions the right method will be one that is constructive rather than one that is repressive, one that gives the child a useful and productive channel into which his energy may be deflected rather than one that merely tries to stop the outflow. The child in the nursery stage is still in the main a self-centred individualist, and curiously non-co-operative. It is a mistake to try to hasten the growth of the social instinct ; it will come of itself when the child is ready. He should have room to behave, within reasonable limits, in the way that is most natural to the level he has reached, and provided at every stage with the formative experiences that he requires. What is essential is that space and staff should be generously provided so that individual play and loosely organised activities can be carried on side by side without the need for obvious pressure or coercion.⁽¹⁾

III—THE INFANT SCHOOL

(88) At the age of five the child enters the primary school. In this country it has been the custom to deal with the earlier years (five to seven *plus*) in separate schools or divisions, and since these are part of the primary school, it follows that the fundamental principle governing the curriculum which we enunciated in chapter VII (pages 91 to 106) of our *Report on the Primary School* applies broadly to the infant school also. *It is the special function of the infant school to provide for the educational needs of the years of transition that separate babyhood from childhood.* Our main concern must be to supply children between the ages of five and seven *plus* with what is essential for their healthy growth, physical, intellectual, spiritual and moral, during this particular stage of development. This does not mean that this stage is to be, or indeed can be, dealt with in isolation from what has preceded it or from what is to follow it. It is essential to keep in mind the importance of continuity with the work of the later years of the primary stage, but no one who has grasped the idea that life is a process of growth in which there are successive stages, each with its own specific character and needs, will dispute the conclusion

⁽¹⁾ A fuller account of the activities of the nursery school or class will be found in chapter V.

that the best preparation for a later stage is to base the training during the particular stage on the immediate needs of that stage. In the words of our previous Report (page 92), "no good can come from teaching children things that have no immediate value for them, however highly their potential or prospective value may be estimated."

We therefore adopt as the guiding principle determining the training and teaching of the infant school the same principle that we laid down for the primary school as a whole: "*the curriculum is to be thought of in terms of activity and experience rather than of knowledge to be acquired and facts to be stored.* Its aim should be to develop in a child the fundamental human powers and to awaken him to the fundamental interests of civilised life so far as these powers and interests lie within the compass of childhood, to encourage him to attain gradually to that control and orderly management of his energies, impulses and emotions, which is the essence of moral and intellectual discipline, to help him to discover the idea of duty and to ensue it, and to open out his imagination and his sympathies in such a way that he may be prepared to understand and to follow in later years the highest examples of excellence in life and conduct." ⁽¹⁾

This general principle requires the whole span of the primary stage for its full development, and its application to the infant school will be more pervasive than direct. It would be entirely inappropriate for instance to attempt to translate it into any rigid or logically ordered curriculum for the infant school. Indeed to apply the term "curriculum" at all to the training and teaching carried on before the age of seven *plus* is dangerous as suggesting a systematic procedure which is opposed to the unordered way in which the child has hitherto developed his powers. The child, even if he has unhappily missed the advantages of a good home, or a good nursery school or class, has already learnt to use his native powers over a wide field of activities and interests. He has acquired mastery of the simpler muscular movements and has begun to co-ordinate them. He has learnt to speak, and begun to build up a working vocabulary by which to express his needs. He has a general, and in some directions an intimate knowledge of his surroundings from which he has gained simple ideas about many things. All this he has acquired through personal experience and experiment in the natural course of growth,

⁽¹⁾ *Report on the Primary School*, page 93.

but always without plan or ulterior motive. It is through opportunities for further experience and experiment that growth will best be fostered in the infant school.

This does not mean that the school has to stand aside and leave the child to follow the wind's way all the time. In recent years, both in this country and in America, there has been a tendency to exaggerate the childishness of the child, and to deprecate any procedure, especially in the training of the mind, which will interfere with it. The free urge of the child is not sufficient to secure his full development ; the best way of doing things is not always that which occurs to the unaided mind. The school, in providing opportunities for new experiences must deal with the child as a growing person and not merely as a child. It is hardly yet realised that after infancy is over intellectual growth is in many respects quantitative, rather than qualitative, and shows itself not by the sudden appearance of the power to carry out a particular intellectual function, but by a gradual extension of the time during which that function is carried out continuously.⁽¹⁾ The healthy child attaches no value to his childishness ; all his instincts prompt him to savour the experiences of those older than himself, and the school which would confine him entirely to childish things because it thinks them most appropriate to his years, does him a grave disservice. In the provision of opportunities for further experience and experiment the school must make a delicate compromise between the immediate powers and needs of the child and his future needs as a potential adult.

Although this duty is no simple one, it is not beyond the powers of a body of teachers who have always shown their sensitiveness to new ideas and willingness to put them to practical test. In the following paragraphs we outline what we believe to be essential for the healthy growth of children between the ages of five and seven *plus*. It will be seen that we have no new gospel to preach. It is probable that there is nothing suggested in these paragraphs which is not already in one aspect or another part of the normal procedure of many schools. What we do desire to see is the acceptance of a different set of values from that which has been usual in the past ; less weight on the imparting of an ordered body of knowledge and more on the development of the child's innate powers, less reliance on the artificial life of the classroom and

(1) Compare Graham Wallas, *The Art of Thought* (1926), pages 231 to 237, also Report of the Consultative Committee on *Psychological Tests of Educable Capacity* (1924).

more on the experiences to be gained out of doors and the opportunities for experiment and discovery which close contact with the real world provides.

(89) Physical welfare (including nutrition, hygiene, medical and nursing supervision) is the foundation upon which mental training should be based, and, if rightly understood and interpreted, it includes much of the habit and character training and the development of intelligence and alertness which is preparatory to the more direct education and training of the mind. *The first place in the training and teaching of the infant school will, accordingly, still, as in the case of schools and classes for children under the age of five, be given to the physical well-being and efficiency of the child.* This is the more necessary so long as only a very small proportion of children reach the infant school through nursery schools or classes, and are not medically supervised through other agencies. The after-effects of illness and lack of continuous medical care during the first five years of life have to be countered. This is not merely a matter of the provision of suitable physical or remedial exercises. It involves regular opportunities for rest, and training in all desirable bodily habits, in particular in personal cleanliness. It also involves ample provision for free movements of every kind in fresh air, and in sunshine wherever possible. A sedentary life is exceedingly unnatural for a child of infant school age, yet unfortunately in many infant schools the child is still riveted to the old-fashioned desk for the greater part of the day. Freedom for movement and full opportunities for exploring the world through the senses remain the prime requisites for the growing child.

(90) *It is on the open-air activities and interests of the children that we would base the training and teaching of the infant school* because it is there that the child's interests first emerge. It is not by quasi-military drill that the development of the body is best promoted, but by, free movements of every kind, running, romping, jumping, climbing and dancing. These activities will accordingly be largely unhampered, and the teacher will only intervene to assist children to play together, or to help them to increasing control of their movements so that they can move quietly when necessary, breathe properly, and adopt healthy postures when they stand or sit.⁽¹⁾

⁽¹⁾ The exercises and games for young children contained in the *Syllabus of Physical Training* (1933) and other publications published by the Board of Education, form a useful guide to the teacher in arranging the more formal physical activities of the children in infant schools.

The child's interests appear first of all in the form of play. Play is a spontaneous exercise of natural or inherited tendencies which will ultimately develop into activities of prime importance for adult life, but which for the moment are mainly undertaken because they yield joy and excitement in and for themselves.⁽¹⁾ Since the child's inheritance fits him for uncivilised rather than for civilised life, merely to follow nature, in the way older reformers have advocated, would leave the child very ill-adjusted in the modern world. Nevertheless, it is these primitive tendencies that have laid the foundations of human civilisation in the past ; and the child may best learn to appreciate and adapt himself to modern conditions if, so far as is possible, he builds upon interests implanted by nature. Games of hunting, fishing, building shelters, nursing dolls, constructing things with the hands, imitating the activities of adult life, all these should be utilised in the infant school, and the more formal scholastic attainments may be aided by the use of such games as these. In this way the antithesis between work and play will not exist for the child ; both alike will be for him forms of welcome activity. During the infant stage the play-way is the best way.

The open air provides the best environment for physical well-being, but this is not the only reason why the children in the infant school should spend a large part of their school hours out of doors. Not the home, nor the school, but the unroofed country is the child's natural laboratory or workshop where he finds the things that appeal to his primitive instincts, the plants, flowers, bushes, living animals, stream, moveable earth or sand, that are his raw material for experience and experiment. The field, the park, the garden, the woodland copse, the waste patch, all are full of interesting things which will hold the child's eye, arouse his wonder, stimulate his inquiries, give opportunities for discovery. It is here, from observation of real things and happenings, that the foundations are best laid of most of the branches of knowledge which will be studied in later school life ; geography in the changing weather, the succession of the seasons, the daily walk to school, the excursion to the park or country, the visit to the zoo ; history in the work of the policeman and postman, the railway and motor, the forge and the factory ; biology in the growing plant and the living animal in their natural surroundings. The cultivation of little gardens and flower

⁽¹⁾ Compare Karl Groos. *The Play of Man*, translated by Elizabeth L. Baldwin, London, 1903, pages 2-4.

borders, the care of birds and animals, the observation of trees and flowers, butterflies and other beautiful things may also be made the foundation of humane habits and of sympathy for others, and lay the seeds of a love of all things beautiful.

(91) It is unfortunate that our English climate compels children to spend more time indoors than is desirable, so that much of the physical and perceptual training that is best done out of doors must be done under cover. The arrangements of the school buildings should accordingly approximate as far as possible to a free open-air life.⁽¹⁾ This means not only ample space for movement and play, but a larger provision of materials for experiment and discovery than is usually found in schools. These should include household materials of all kinds, paper, cardboard, canvas, muslin, laths, lengths of rope and string, glass and elastic tubing, pulleys, balances, vessels for measuring liquids and solids, a few simple tools, and toys of various kinds to satisfy childish curiosity, constructiveness, and an incipient spirit of scientific inquiry.

Although the school is at its best only a poor substitute for the spaciousness and fullness of the open air, its limitations provide an opportunity for realising a standard of life and acquiring the social habits which are necessary for a communal life, above all for the exercise of unselfishness and consideration for others. Although the school has to add the functions of a playground and a workshop or laboratory to its traditional function as a place where formal teaching is given and exercises worked, it should set a standard of neatness and tidiness in the maintenance of which the children take an active share and feel a personal pride. Their assistance in keeping the rooms orderly should be welcomed and encouraged. There is no reason why they should not attend to any plants, flowers or animals that may be kept, fetch, distribute and put tidily away any books or apparatus that may be required for classroom work, and undertake responsibility for the right use of the cloakroom, the order of the cupboards and the storage of materials in daily use, not only with the idea of helping their teachers but because it is their school and they are proud of its appearance. They should prepare and lay the tables for the mid-morning lunch, clear away after the meal, and undertake any washing up that is needed. And children can learn the royal road to lasting happiness in helping other children.

⁽¹⁾ see chapter VIII, §§ 115 and 116.

(92) The school moreover offers opportunities for the exercise of many instinctive tendencies of the child which are more easily exercised under cover. Among these one of the most important is speech. The young child loves to chatter, not necessarily to seek or communicate knowledge: at the outset it is mainly a form of self-expression. Whether the child of five continues to talk freely depends greatly on the atmosphere of the school. In a repressive atmosphere, such as was too common in the schools of forty years ago, the desire wilts and dies. In an atmosphere of confidence and lack of restraint it blossoms.

The speech training begun during the nursery stage should be continued throughout the infant school stage. It will serve a double purpose; first, to help the child to extend his vocabulary—the new words that he hears in school must be used before they become his own—and to express his ideas more freely; second, to correct slovenly and inaccurate utterance.⁽¹⁾ It is important to keep these two aims distinct; the flow of words should not be interrupted in order to correct an error; the error should be noted and corrected at another time. The first aim is most successfully secured when the child's talk is about things in which he is personally interested, what he has seen and done since he was last in school, the shopping excursion for his mother, the visit to "the pictures". The old type of "conversation lesson" in which the teacher initiated the talk failed too often to loosen tongues just because it was out of touch with the children's interests. As a rule, children should have liberty to ask questions whenever they really want to know something, and these questions should be treated with respect and deference. The wise teacher will indeed judge of the effectiveness of her teaching almost as much by the questions the children put to her, as by their response to those she puts to them. The second aim can probably best be secured by connecting it with the child's sense of rhythm to which we refer in the following paragraph. Verse-speech, emphasised by stepping or movement of the hand or arm, unconsciously demands clearer and more emphatic enunciation than ordinary conversation,

⁽¹⁾ "Speech training involves consideration of the use of dialect. There can be no doubt that an attempt to correct local peculiarities too early has a depressing effect upon the child's power of speech. With young children, the capital aim must be to secure that they begin to use language freely and easily; a nearer approach to standard speech may be dearly bought by an unnatural reticence on their part"—Report of the Consultative Committee on *The Primary School* (1931), page 157.

and conscious imitation of the teacher to get the required effect leads quickly to the elimination of old bad habits of speech. The traditional "tongue-twisters"—Peter Piper picked a peck of pickled pepper, etc., Peter went down to the water, Down to the water went he—are also valuable and their practice easily takes on the nature of a game. The telling and re-telling of stories, the repetition of nursery rhymes and simple poetry, the learning of which is an essential part of speech-training, all give invaluable opportunities, not only for the practice of clear speech and continuous expression, but also for the habit of careful listening and sustained attention, an art which perhaps hardly receives at any stage of school life the attention that it deserves, though within proper limits it is not beyond the capacity even of young children.

(93) The school hall or playroom also provides an outlet for the expression of children's interest in pattern and feeling for rhythm. It is, as a rule, through rhythm expressed in music, or at any rate in sound, that the rhythmic instinct of the child first discovers itself; while melody, the other essential part of music, has been called the native tongue of the child.⁽¹⁾

It is natural to children to express their sense of rhythm in movement, and they should be encouraged to do so. At first they will beat out the regular accents of a piece of music by hand-clapping, tapping, or with the aid of simple instruments of percussion, but before long the whole body will be called into play, and children will take delight in devising ways of marking the accent in marching, skipping, hopping and galloping, and in movements of unselfconscious grace. In these modes of expression children acquire that kind of sensitiveness which Plato spoke of as *eurythmia* and valued highly because, though expressed in bodily bearing and movement, spiritual elements of deep importance were implicated in it and it was likely to run out into many expressions of a man's nature in his work.⁽²⁾ In the infant school this grace of movement finds opportunities for expression in the joyful dance, not only linked with but expressive of simple and beautiful music.

Singing has for long held a prominent place in the activities of the infant school. *The traditional hymns, nursery rhymes and game-songs should form the natural repertory for the younger children,* and are better than some action songs which often make the mistake of exaggerating the childishness of the child.

⁽¹⁾ *Handbook of Suggestions for Teachers*, 1927, page 239.

⁽²⁾ Report on *The Primary School*, page 95.

Another basic interest of children for which the school should provide an opening is the love of acting. Dramatisation in fact serves a twofold purpose. On the one hand, with music it helps to develop the power of expression in movement which is so closely knit with the development of perception and feeling ; on the other hand, it provides opportunity for the practice of speech. We have already laid stress on the importance of both for the growing child.

(94) The impulse on the part of children to use their hands and fingers for constructive and creative work develops rapidly between the ages of five and seven. Froebel was the first in modern times to include in his Kindergarten opportunities for satisfying this impulse, and when his ideas began to permeate English practice, time-tables began to show a new subject of instruction called " Occupations ". Since it was easier to get hold of Froebel's " gifts " than to grasp his ideas, the new subject was treated with much the same formality as the 3 Rs, and the emphasis was placed on construction in a very limited range of materials, which the children carried out in making objects of the teacher's choice and in the teacher's way. Only slowly was the value and importance of creative work recognised. Creation has always been hampered by the narrow choice of materials provided, and this has limited, stereotyped, and made unreal much of the children's work. Too much stress has been laid on what is called " expression work ", too little attention paid to the practical bearing of what is done. Even to-day there are schools in which " handwork " is treated as an isolated subject of the curriculum, and the importance of constructive work in adding reality and life to all the activities of the school is hardly realised.⁽¹⁾

Constructive work ought to occupy an important place in the activities of the school. From his earliest years the child has used his hands to explore the nature of his material surroundings, and has thus learnt something of the properties of different materials. He wants to use his powers and knowledge in making objects which will give reality to his make-believe world, and the school should help him to do so, in one direction by increasing his knowledge of different materials so that by personal experience he may know what can and what cannot be done with them, in another direction by

⁽¹⁾ Some of our witnesses said that the introduction of standard apparatus was responsible in some schools for a tendency to thrust handwork into the background.

developing his control of hand. There is little doubt that *manual and aesthetic development are better secured when the child is left to make what he likes, how he likes and, within reason, when he likes than by any set lessons.* His teacher will find ample scope in helping him to overcome difficulties of construction as they occur, for example, how to make the wheels of a cardboard model of a motor turn round.

The same considerations apply to the allied art of drawing. Drawing is as natural a form of expression for the child as speaking. He is eager to draw the things that interest him in the world, and is not deterred because these things—living creatures in action, the machines of man's invention, rapidly changing natural phenomena—are hard to draw. He delights in bright colours. He likes large sheets of paper so that he can "draw big". He draws from memory best because his visual memory is charged already with the pictures of the things that interest him. In all this the school should encourage the child's creative impulses. The teacher will find ample scope in helping him to improve on his crude drawings when they cease to satisfy his growing judgment, and will help the child more in this way than by any premature attempt to make him draw from the object.

(95) "At the heart of all teaching is the teaching of religion." This is the leading motive behind the numerous syllabuses of religious instruction which local education authorities in recent years have published for use in council schools and have recommended for adoption as a common basis of religious education in other schools. ⁽¹⁾ It is recognised that the first religious questionings of children are prompted rather by the beauty and wonder of the world about them than by the commonplaces of life which they take for granted, and that simple hymns and poems dealing with the wonders of creation and songs of praise and aspiration should form an important part of their early religious training. The Gospel story and the stories of other of God's children who have served Him in the light of their knowledge since the world began, will unfold to them God's love for man. In all this, oral narration will play the greater part, and the narrative will be imbued with the spirit of the original story, and animated by the actual words of Scripture. Finally, nothing should be done to lead children to the impression that religion is something

⁽¹⁾ What is said here is subject to the statutory requirements concerning religious instruction.

apart from or superimposed on the life of the school. The teaching can have no greater assistance than through the constant practice of the Christian virtues in the daily life of the school.

(96) The young child's natural activity and his zest for living fully, impose a severe tax on his growing physique, and he needs periods of rest. Very few children attending infant schools spend in bed the proportion of time that is necessary for healthy growth.⁽¹⁾ The adoption of "summer time" has shortened the night for children during the months when they live most actively, and the distractions due to broadcasting interfere with their proper hours of sleep. *Up to the age of five children need a sleep during school hours, and other opportunities for repose. The need for the mid-day sleep diminishes between the ages of five and six, but throughout the infant stage the child still requires occasions for rest when his limbs and his brain can recuperate.*

These quiet periods are the time for the teacher to tell stories ⁽²⁾ and read aloud to the children, not with the idea of any subsequent exercise or recapitulation on the children's part, but, as a mother in a cultured home reads to her children, to satisfy their love for a story and to make them for a time forget in the interest of the narrative the urge to activity. Story-telling and reading aloud, of course, serve other ends, but these should be kept subservient: if the teacher has a calm and distinct utterance and a pleasant voice—and any one who does not possess these is seriously handicapped in teaching young children—her reading will set a standard of speech to which the children will unconsciously tend to conform; through listening their vocabulary will grow and their experience will be widened, for language is only exactly adapted to the child when it is a little beyond the language that he naturally uses. There is a wide range of stories which can be drawn upon, beginning from nursery rhymes and standard tales like the Three Bears, fairy stories like Cinderella, fables, animal stories, stories about great heroes in the past and in the present. For reading there are the fairy stories of Hans Andersen and the brothers Grimm, and stories of the doings of children, and animals, while history, provided it is not written as a text-book for schools, is not out of place.

⁽¹⁾ See Annual Reports on *The Health of the School Child* by the Chief Medical Officer of the Board of Education. Cf. *Handbook of Suggestions on Health Education* (1933), pp. 27 and 70.

⁽²⁾ Compare chapter VII, § 109.

But the books which are read aloud to children should not be only those that are written in prose ; children delight in poetry with its appeal to their pleasure in rhythm, and enjoy ballads and vigorous narrative. Towards the end of the infant stage they will listen spellbound to such a poem as Tennyson's Gareth and Lynette. The one thing that matters is that what is read must not be written down to suit the supposed childishness of the child, for children are quick to detect condescension and insincerity. Nor should the reading be interrupted overmuch to explain words or details.

(97) The spontaneous unfolding of certain inherited powers that accompanies growth in natural surroundings is not the only aspect of mental development, nor of itself will it carry the child far. Mental development also includes the acquisition of certain forms of knowledge and skill that are neither natural nor innate. In particular before an individual can take his place in the civilised world, he must acquire the use of certain instrumental subjects. Among these the 3 *Rs* are the key to all the rest.

In the 3 *Rs* the child learns to recognise and use the symbols which man has long since devised to simplify his mental processes, to express and clarify his thoughts and wishes, to record and communicate them to others. No other invention has contributed so much to his mastery over material conditions. The use of symbols is no novelty to the child. He has used them in his play ; a walking stick becomes a horse, a row of chairs a train, as the mood moves him. He is intensely interested from early years in the symbols which his elders employ. Sooner or later, and more often sooner than later, the healthy child wants to know more about them.

In the past attention has been focussed too exclusively on reading, writing and arithmetic, and they have received so large a share of the school time that other activities of equal importance to the young child have been starved. It is part of the English educational tradition ⁽¹⁾ that children when promoted to the primary school at the age of seven to eight should be already equipped with the mechanical elements of these fundamental processes. It has commonly been assumed that this means that it is necessary to begin formal education low down in the infant school. The result is that reading, writing and arithmetic are begun in England earlier than is usual in Continental countries or in America.

(1) Compare chapter I.

Acceptance of the Froebelian doctrine of the sufficiency of self-activity has led many to doubt the wisdom of the English procedure. It is well-known that the postponement of formal instruction does not handicap the child in the long run, that the child of eight or nine learns to read in a shorter time and soon overtakes in arithmetic children who have begun the 3 Rs at an earlier age, and is as well equipped as they are. Recent research in America has been devoted to the discovery of what is the best age to begin reading and arithmetic ⁽¹⁾, and concludes that formal instruction in reading and arithmetic should be postponed until the child attains the mental age of about six years and six months. Professor Burt practically agrees with this finding when he says "there should be little or no formal instruction before the age of six at the very earliest", although he would allow the child who wishes to read or write or cipher to do so at an earlier age.

This last indeed is the right course to adopt, and the only one which really carries out Froebel's principle. The question when a child can most easily learn to read or write or deal with number is unimportant in comparison with the necessity to satisfy his demand for new fields of activity. *The child should begin to learn the 3 Rs when he wants to do so, whether he be three or six years of age.* Only in this way will the acquisition of the 3 Rs come about incidentally as a part of widening interests and appear natural both to child and teacher and be no longer a catastrophic change in their relations. *Of the 3 Rs reading is incomparably the most important*, though there are many children who find arithmetic more fascinating.

Much attention has been paid in this country to methods of teaching reading to a group of children, and a variety of methods is employed by different teachers. In all the first step is to secure word recognition; in the old "look and say" method the child learns to recognise words by their appearance

⁽¹⁾ See Mabel V. Morphett and Carleton Washbourne, *When should children begin to read?* Elementary School Journal, Vol. XXXI, March, 1931; and Carleton Washbourne, *Mental Age and the Arithmetic Curriculum*, Journal of Educational Research, March 1931, which summarise the findings of the Committee of Seven of the Northern Illinois Conference on Supervision. The first paper concludes that "it pays to postpone reading until a child has attained a mental age of six years and six months," the second that the minimum mental age at which arithmetic should be begun is six years five months, and the optimum mental age is seven years four months. By minimum mental age is meant the age before which "it is ineffective, if not futile to teach" a topic; by optimum mental age the age at which the topic can be begun most economically of time and effort.

through their repeated occurrence in simple reading matter, while the various " phonic " methods aim at making the child independent of his teacher by giving him a method by which he can discover the pronunciation of a word for himself and analyse longer words into their phonetic elements. In the more recent " Sentence " methods the child is introduced to words in the performance of their natural function as components of a complete sentence, and thus learns to recognise them as part of a whole. Each of these methods emphasises important elements in learning to read, and most teachers borrow something from each of them to meet the need of the moment or the special difficulties of different children. Whatever method is chiefly relied upon, the fact remains that the ability to read is only acquired by much individual practice, and one of the problems which the teacher of a class is called upon to solve is how to devise means for giving adequate practice. One solution frequently adopted is to divide the class into small groups for the reading lesson. The old-fashioned lesson in which the children in a large class read a sentence or two in turn gave insufficient individual practice and made learning to read a slow business. Given sufficient practice, there is no reason why a child should not be able to read with pleasure to himself any book suitable to his age by the time he leaves the infant school, even if he has only begun to learn to read at the age of six. The home can also help here, for it is common experience that young children will supplement their reading in school by reading at home when suitable books are available.

Writing is closely allied to reading and should be begun at the same time. It is usual in infant schools to teach a simplified form of Roman type in order to maintain the association with reading, and the printing of words, alone or in sentences, helps to fix the mental picture of a word and its recognition in fresh connexions. The usual practice is to base the earliest teaching on tracing, the child learning the arm and finger movements employed in printing by tracing over the outlines of sandpaper letters with the fingers and repeating the movements on a sand-tray before printing them on paper with chalk or pencil. Much exercise in free drawing will naturally precede this beginning of writing. The use of pen and ink can well be left to the primary school, where also the use of a cursive style of handwriting can be taught.⁽¹⁾

(1) see *Report on The Primary School*, pages 193-4.

Writing, however, soon acquires an independent value the discovery of which can be left to the child from observation of the habits of his elders. When he has seen how his elders use writing as a means of recording and communicating facts and ideas, he will want to copy them. His earliest spontaneous attempts will naturally be based on his personal experiences and the events of his daily life in the home, the street and the school. If these early attempts are received with respect and encouragement he will continue to write, and there is no need to formalise the practice of a natural activity by prescribing set subjects on which to write or a premature attention to technique. The child's first attempts will probably be spelt phonetically, but his interests can easily be aroused in spelling, and the experience of many schools shows that the habit of correct spelling is acquired without difficulty.⁽¹⁾ If the child is encouraged to write freely in his own way and on things which interest him, he will do so before he leaves the infant school.

Many teachers who are convinced of the desirability of beginning reading and writing in the infant school are doubtful about beginning arithmetic. On the other hand, the recent American research quoted above lends little support to the view that ability for arithmetic is a later phase than ability for reading. Moreover, except in sheltered homes, few children reach the age of five without considerable experience of shopping including simple practical money operations, and some rudimentary knowledge of number. Where this is the case, refusal to recognise and make use of this experience can only result in cramping the natural growth of the child. As a matter of fact most young children are extraordinarily interested in number, and in schools where the teaching is based on this interest they do not find the study of arithmetic tedious or dull or useless. Children soon find in arithmetic a field in which they can measure their growing mastery of the tool and their growing powers of concentration. The child's natural interest in, and curiosity regarding shape, size and number is the justification for his beginning arithmetic in the infant school.

The child's natural approach to arithmetic and mathematics is through the fitting of flat wooden inlays of various geometrical shapes into their respective frames, and through construction in which he learns to recognise shape and the

⁽¹⁾ There is some evidence to show that children who have been taught to read by the "Sentence" method (see page 134) have less difficulty in learning to spell correctly.

importance of measuring, through play in which he imitates grown-up activities such as shopping and playing at trams, and through number games such as nine-pins or throwing at a target. Through these activities he becomes interested in counting, measuring and calculating. Counting introduces the child to the ordinal use of number and the first step in arithmetic is to establish the proper order of the numbers in the child's mind and to associate the words "three, four," etc., with the numerical symbols 3, 4, etc. Measuring, the handling and comparison of groups of real objects, and games of shopping will introduce the cardinal use of number with which arithmetic really begins.

In the past it was usual to proceed systematically to the analysis of numbers up to 10, then from 10 to 20, and so to establish the simpler arithmetical operations for small numbers. The experience of schools, however, which set children to experiment with counters, beads, sticks or pebbles, shows that this formal treatment is not necessary. The "addition" and "subtraction tables" are learnt as effectively and more quickly. Nor, when the child is ready for them, is there any difficulty in dealing in the same way with the "multiplication table", multiplication and division by personal experiment with the same tools. Progress will be materially aided if the children are allowed to compose their own examples and taught to prove their answers.

The range of work that is practicable will naturally vary with the capabilities of individual children. No uniform standard should be expected, but each child should be allowed to go as far as he is capable of going at his own rate of progress. Experience suggests that most children will, before the age of eight, have acquired at least the power to work straightforward sums in the fundamental processes and in money, provided that the numbers are not too large, and will have acquired some knowledge of shape through personal experiment.

There are two final observations to be made. It has often been urged that all the arithmetic in the infant school should be "concrete". We referred to this matter in our note on "Arithmetic and Simple Geometry" in our *Report on the Primary School* (page 175). As we said then, if by "concrete" it is meant "that the child must only deal with numbers of articles and never with number in the abstract, must add horses to horses and take nuts from nuts, and never add three to four or take seven from twelve, it is pure pedantry. It is common experience that abstract numbers present no

difficulties to children while to label quantities in a sum adds nothing to their sense of reality. The truth is that the fundamental operations of addition, subtraction, multiplication and division belong to the abstract side of mathematics and are most simply and effectively dealt with in the abstract". The use of counters or other simple article such as cardboard coins for money operations gives the child the necessary confidence that his operations are real.

The second observation relates to the use of problems. We do not think that children in infant schools should be bothered with questions set in the form of problems, however simple may be the operations concerned when they are picked out from the wording of the questions. The only problems which a child should be expected to solve are those of his own construction.

(98) With the 3 Rs we complete the enumeration of the aspects of training and teaching that we desiderate for children during their life in the infant school. For the practical purpose of school organisation it is convenient to group them roughly under four heads: (a) religious instruction; ⁽¹⁾ (b) natural activities including physical training, open-air life, rest and play; (c) expression training, including speech, dancing and singing, handwork and drawing; and (d) formal instruction in the 3 Rs. We recommend that in arranging the life of the school, *the time available for secular occupations might with advantage be divided more or less equally between (b) and (c) in the case of the younger children, and between (b), (c) and (d) in the case of the older children who have begun the 3 Rs, and in their case the largest share of the time allocated to (d) should be devoted to reading.* This classification must not be taken too rigidly: it is obvious that one group of activities—in particular those included under (c)—overlaps other groups. Opportunities for the practice of speech cannot be limited to the lesson periods given to (c). What we are concerned to secure is adequate attention to the aspects included under (b) and (c) and no encroachment on the time allotted to these in the interests of formal teaching of the 3 Rs.

With the division of time between these groups of activities the main purpose of the time-table in smaller schools and divisions is fulfilled, and a more detailed division of the school

(1) We only separate this because religious instruction is governed by the Education Acts, and is subject to external regulations as regards the time-table. The time allocated to religious instruction is not included in the rough allocation of time suggested above.

hours is more likely to hamper than to help the teacher. In larger schools where several classes have to take their turn in the use of the hall and playground, more definition of the time-table is inevitable. Even here the teacher should have a large discretion in the use to which a particular block of time is put. The infant school is not a microcosm of the school for older children, and no greater mistake can be made in its organisation than to copy the pattern of the time-table designed for the needs of older children. A patchwork or mosaic of this kind only bewilders the young child by its rapid alternation of unrelated topics. It was of a school day organised in this way that a child remarked, "I like school except for the *interruptions*".

Nor should any hard and fast rule be adopted for the length of lessons. Different activities require different allowances of time. A wide distinction must be drawn between periods of oral instruction, which should be short, and periods in which children are actively employed. The child loves a job, but he likes to finish it, and it is bad for him not to finish it ;⁽¹⁾ ideally the lesson period should be long enough to allow him to do so. The only criterion by which the length of a lesson should be determined is the decline of interest or activity. The notion that all lessons should be short smacks of the study. It was never proposed by the child.

(99) It is usual in infant schools in this country to classify children according to age, so usual that the classes are often spoken of as the "fives", "sixes" and "sevens", and some local education authorities have followed the same custom when they divide the infant school stage into three "grades". This tradition can be justified because differences in intelligence are not so wide as they become in later stages ; broadly speaking it is only in the formal subjects that the differences are at all obvious, and modern methods of procedure make it possible to deal with them without changing the classification. In the other activities of the school the retarded child probably gains as much from the normal course as he would from special treatment. Classification by mental age is accordingly not often adopted. On the other hand, many schools have experimented with what is known as a "vertical" classification. Here each class contains children of all ages from five to seven or eight, each occupied with work appropriate to his powers, and they remain throughout the infant stage in the care of

⁽¹⁾ See the Report by the Consultative Committee on *The Primary School*, pp. xxv and 195.

the same teacher. It is claimed that young children gain much from the longer association with a single teacher whom they have time to learn to love and trust, that the teacher gains a far more intimate knowledge of her children when she lives with them for two or three years than when she only has charge of them for a single year at most, that the younger children profit from the example and guidance of the older children while the older profit by living with those younger than themselves, that the classroom life approximates to the nursery life of a large family where children of different ages live and play together, and learn to give and take from one another. This system of organisation obviously calls for special gifts in the teacher, but it "works".

(100) We now come to the important question of procedure, the broad lines on which the teacher arranges for the training and teaching that she imparts.

The present procedure of the English infant school is a composite, founded on the traditional practice of schools during the days of payment by results, but coloured since 1900 by the pooling of experience and ideas which took place in child study circles and other societies for teachers of young children, by the influence of American practice,⁽¹⁾ by the introduction of medical inspection, but above all—and here the training colleges have played a notable part—by the steady penetration of the humanising ideas of Froebel, of Mme. Montessori, and in very recent days the growing influence of Margaret McMillan.

With few exceptions, the infant school of 1890 was still a place to which children were brought to learn, regimented in large classes—often with more than sixty children—and taught in the mass. School life for the child was largely a mechanical drill of behaviour and instruction. He had to conform to those habits which alone made possible the uniform instruction of large numbers of children; to sit still, only to speak when spoken to, to give prompt and automatic response to the word of command. His natural impulses of curiosity, experiment, inquiry, and expression of thought through speech and gesture, were firmly suppressed. He was tied down to a definite and narrow range of work, and compelled to advance at a definite and average pace. Yet, children did learn under this drill, and enjoyed their school life when under an amiable and skilful teacher.

(¹) In which we specially include the work of Professor Dewey.

The letter of Froebel's teaching reached the infant school before the spirit. At first it meant only the addition of new lessons to the time-table, the use of the "gifts", "occupations", and, to a limited extent, opportunities for play, all of which were still governed by the old ideas of mechanical drill. Since, however, these new activities reduced the time available for the 3 Rs, they did something to limit the domination of these subjects though they did not break it. Nor did they break the idea that the class was the unit for instruction. The early years of the century also saw the beginnings of "correlation", an attempt to apply Froebel's belief in the unity of all things, in which the syllabus of work for a definite period was ingeniously centred round a single topic, chosen by the teacher and generally illustrative of the march of the seasons, and the snowdrop, the primrose and the sparrow in turn gave a strained unity to all the activities of the school.

That the spirit of Froebel's teaching was harder to absorb was largely due to the way in which it was presented. Froebel was a mystic and a sentimentalist, and his mysticism and sentimentality for long interposed a fog between the teacher and her children. It was only when thoughtful teachers began to question the efficacy of class instruction that the true implications of Froebel's teaching became clear. These teachers saw that class instruction assumes the existence of a common rate of progress for the class as a whole, whereas their experience showed that different children progress at very different rates. They realised that the common rate was only bought at a price which the child had to pay. They were led to the conclusion that the child, not the class, was the real unit for instruction, and that school procedure must be so modified that each child should have liberty to grow in his own way, and to learn by doing. This is Froebel's master principle, and his enduring contribution to educational theory.

The first English experiments in applying this principle were made in the years immediately before the War, and were in the main directed towards the teaching of the 3 Rs because it was here that the rule of class instruction was most absolute, and because it was here that the crux of the problem lay—how to replace formal class instruction by personal effort and achievement when classes contained from fifty to sixty children. With the discovery that children were ready and eager to work by themselves and profited by doing so, what was popularly known as "individual work"

became a feature of the infant school. Its rapid spread in recent years owes much to the teaching and practice of Mme. Montessori.

Mme. Montessori, like Froebel, stands for the right of the child to unfettered growth, but while Froebel approached the problems of education from the standpoint of theology and metaphysics, Mme. Montessori has approached them from the standpoint of modern physiology and psychology. This difference in approach throws light on their differences in practice. Froebel envisaged the school as a garden in which the teacher lived with her children, played with them, and shared in their initiative ; Mme. Montessori has made the school a kind of laboratory, furnished it with scientifically designed apparatus, and bids the teacher to stand aside and watch the children while they learn through the use of the apparatus. Froebel stressed learning through play, Mme. Montessori stresses learning through absorption in the job, the job for the younger children enriching their sense experience, for the older children leading to the mastery of the 3 Rs. These are extreme views because procedure is viewed from widely different angles, yet both contribute valuable elements to educational practice. The school is neither a garden nor a laboratory, but something between the two, and the limitations of existing buildings and playgrounds make it very difficult to arrive at the ideal compromise in procedure. English teachers as a rule have had to be content to do their best under their circumstances to borrow from each system those elements which can be fitted harmoniously into their educational philosophy. They have, however, in general maintained the underlying principle of both systems that, *so far as possible, the child should be put in the position to teach himself, and that the knowledge that he is to acquire should come, not so much from an instructor, as from an instructive environment.* Margaret McMillan, by substituting shelters in a garden for classrooms and a drab playground, has shown how the limitations imposed by buildings can be broken down. She believed that an open-air environment is of paramount importance for promoting the mental and physical development of children, and she proved that it is practicable to provide it in the very midst of a poor and crowded neighbourhood.⁽¹⁾

(101) It is the acceptance of this principle of the instructive environment that has led to the prominent part which didactic apparatus plays in the modern infant school. In the past

⁽¹⁾ see appendix IV, pp. 254-6.

apparatus was a tool for the teacher to illustrate her teaching and add to its effectiveness. To-day it is a tool for the child and its use has a threefold justification. It leads more quickly to a mastery of the formal subjects ; it helps the child to acquire the habit of discovering things for himself ; it escapes the damage to character which too often ensues when instruction is forced upon the child by an external and personal authority. Its use, however, was at first dictated by more practical considerations. If in a large class children are to learn to read, write and cipher by doing and trying for themselves, they must, in the early stages at least, have tools for the purpose. *Didactic apparatus provides these tools.* There is no necessity for elaborate apparatus, as a rule the simplest is the most suitable. The best apparatus is that which the teacher has designed and made for herself in full conviction of its necessity and with confidence in her own idea. It should be so simple that children can use it without much guidance from the teacher, and wherever possible be self-corrective so that children may know for themselves if it has been rightly used. It should be progressive in character, for although children will repeat an operation until they feel that they have mastered it, a time comes when they ought to turn to something else.

Valuable as this use of educational apparatus is, it is not without its dangers. It is very easy to forget that the use of apparatus is only a means to an end, and to think that so long as children are occupied with apparatus all is well. Apparatus must not be used too mechanically, and the graduation that suits one child does not necessarily suit all. The time will come, too, when these artificial aids are a hindrance rather than a help, and the child should cease to use them. Most of all, it is fatal for a teacher to assume that, because a scheme of work bears a great name, it is therefore all-sufficient, and that she herself can now stand aside and leave every child, the dull and inert as well as the bright and active, entirely to himself.

(102) *Individual work sets the teacher free as well as the children. But her responsibilities will be increased, not lessened.* If the children are unaware of the syllabus and its subdivisions, there is all the more reason that the teacher should have a clearly formulated scheme at the back of her mind. The children will need closer observation than before ; but they will reveal their own strong points and weaknesses with a clarity which is impossible in the ordinary class ; and the

teacher, being less absorbed in keeping discipline and conducting the lesson, will have more time to watch and more leisure to spend on individual attention. As we show below the oral lesson will still be necessary, but it will take on a new character.

Those who have introduced the principle of individual work have been equally insistent on the need for individual records : those who have copied the principle have too often supposed that they could apply the one and dispense with the other. Without a record of each child's progress it is impossible to know what ground has been covered and which child is making no advance at all. With a large class a progress-book for each scholar will be impossible. A simple tabulated schedule will be sufficient ; and often the child can profitably be allowed to mark off his own little successes for himself. The regular use of records of this kind to control progress is the only way to meet the criticism of desultoriness and lack of purpose which has often been made on the work of schools which have adopted the practice of individual work without a clear understanding of the conditions necessary to make it successful.

(103) If the child is placed in natural surroundings, and if his time is occupied with natural activities and interests, the problem of moral discipline almost solves itself. Class management in an infant school used to be notoriously difficult, but it was difficult because the problem set was essentially unnatural. Too often it meant keeping children silent, still, and inactive, in order to aim at measurable results. For such purposes fear and repression are the easiest instruments, but at this stage more than any other they may do irretrievable damage to the child's moral character and nervous system. And while they seem to be solving the difficulties of control, they are actually multiplying them.

Freedom is essential ; and freedom only becomes dangerous when there is nothing to absorb the child's restless activity and provide an outlet for his experimental spirit. Collective action is indispensable, and proper social behaviour must be cultivated. But if the bulk of the work is individual work, the child will be all the more ready to sit still and listen when the moment arrives for class teaching, or to co-operate with others in collective work.

There need be little fear that those who are brought up under conditions of freedom will find it difficult to accept authority later on. Experience shows that if authority has

not been imposed upon the child too early, at a stage before he can really understand it and while restriction still means a mental strain, then he is more, and not less ready to accept the inevitable discipline later on. The fact that he is internally free and has learnt to discipline himself makes him all the more willing to submit to external authority when necessary without resistance or resentment. It is the child that has fretted under the arbitrary restraints imposed by a narrow home or school who tends to rebel against authority later on when he feels himself stronger and more independent.

(104) The provision of didactic apparatus and the practice of individual work will not of itself satisfy the needs of the growing child. *All progress depends on the child's acquiring new ideas and new interests at the right moment.* In the past this was almost entirely done through formal class instruction. The course of work in arithmetic, for example, was determined in advance, and parcelled out into a series of lessons which were given by the teacher at a stated time and to the class as a whole, without regard to the fact that the lesson might be otiose for some children and premature for others. This divorce between the supply of ideas and the demand for them contributed greatly to bring the formal class lesson into disrepute in the early days of individual work.

Children gather many new ideas from the talk and example of other children, from the home and the outer world, from visits to other classes in their own school or to other schools to see what kind of things other children are doing. But these, though not to be despised, are not sufficient, and it is now recognised that *the oral lesson has still a definite place in the school procedure.* In no other way can many new ideas be so effectively introduced with economy of time and effort. The occasion of such lessons will not be governed by a time-table but by the actual needs of the children as they occur. However wide may be the range of attainment between the most and least advanced members of the class, *there will always be some sufficiently level in attainment to be treated as a group,* and these children will be gathered together when necessary for a short oral lesson in which their difficulties of the moment may be explained, or the new ideas for which they are ready may be introduced. Many concrete problems which will appeal to individual children can also be studied, or at any rate started, best in class. These oral lessons, and the occasions when the teacher tells stories or reads aloud to the children, will help them to acquire the important habit of

listening carefully. The ability to give a good oral lesson still remains one of the most important qualifications of the teacher of infants.

Nor will group work be neglected. Individual work rightly emphasises the value of the child as an individual, but he is also a member of a community and the conditions of civilised life make it necessary for him to learn to work harmoniously with others and to subordinate his free impulses to the necessity of common action and a division of functions, if the job which he and his fellows have undertaken is to be successfully accomplished. Here the project which calls for the united service of many hands, the shop, the market, the farm, the ferry boat, is invaluable, provided the underlying idea is proposed by the children themselves. The one essential for success is that the project shall arise spontaneously from the children's interests. Then, and then only, Froebel's dream of "correlation" becomes a living thing.

(105) What then can we fairly expect of the child at the end of his life in the infant school? He should have had reasonable opportunities by suitable surroundings, games and other physical activities, for ensuring good physical development and acquiring good physical habits. He should have developed some power of steady concentration, some appreciation of the importance of effort, some knowledge of his own achievement and how these compare with those of his fellows. He should have learnt something of how to live as an individual who is also a member of a group. He should have acquired some first-hand knowledge of the world around him by direct and active experiences and experiments, so that he is prepared for the right interpretation of later book knowledge. He should be able to express himself readily in clearly articulated speech and in movement, and should have had an opportunity of enjoying beauty in language, music and colour. He should have begun to acquire by means of various practical activities some power over material. He should have learnt to listen carefully to what is said to him, and to read very simple matter with enjoyment, and should have acquired the skill to write legibly and with some ease with a soft pencil. He should have been taught to perform some simple arithmetical operations.

In none of this should a uniform standard to be reached by all children be expected. The infant school has no business with uniform standards of attainment. Its business is to see that children in the infant school stage grow in body and

mind at their natural rate, neither faster or slower, and if it performs its business properly there will be as much variety of attainment as there is of intellectual ability. The only uniformity at which the infant school should aim is that every child at the end of the course should have acquired the power to attack new work and feel a zest in doing so. Many of our teacher witnesses spoke of a tendency on the part of teachers in primary schools to demand more, and complained that the shadow of the general examination at eleven was already falling on the infant school. It would be deplorable if it should be allowed to do so, and a disastrous interference with the proper function of the school.

Finally, our whole conception of the training and teaching of the infant school depends upon the teacher ; it will be successful in so far as she has faith in the underlying principles and confidence in her ability to interpret them. To train young children is not an easy undertaking, and entails a continuous nervous strain on those who attempt it. It is easy to love young children, but hard to retain a youthfulness of mind when constantly occupied with a limited sphere of work, harder still when classes are large. The ever present danger is a lapse into a mechanical routine, and nothing makes it easier to fall into mechanical ways than a close internal definition of the scope and method of work. In this chapter we have deliberately refrained from detail because the last thing that we desire to see is a standardised infant school. We believe that the interests of children will be best served by giving to the teacher the same liberty in planning and arranging her work that we claim for the children in these early years.

NOTE ON THE PROBLEM OF THE TWO LANGUAGES IN INFANT SCHOOLS IN WALES

(106) The question of the two languages in Wales was discussed in our *Report on the Primary School*. In that Report⁽¹⁾ we quoted the following passage from the *Suggestions for the Consideration of Education Authorities and Teachers* (Memorandum No. 1) issued in 1929 by the Welsh Department of the Board of Education :—

“ That there be no attempt to give formal instruction in a second language, whether English or Welsh, in any infant school. Simple rhymes, folk-songs, and games, however, can be taken in that language, mainly as mimetic

⁽¹⁾ page 167.

exercises, so as to take advantage of the plastic state of the child's vocal organs at this early age, and accustom it to utter sounds in the second language, which it would master with greater difficulty at a later stage. It is considered that the chief function of the infant school is to reinforce the child in the home language, whether English or Welsh."

We stated that in the light of our evidence from Welsh teachers and administrators, we agreed generally with this suggestion. The evidence submitted by our Welsh witnesses on the present inquiry is also definitely in harmony with the policy therein indicated, with slight modifications depending on a definition of the terms "second language" and "home-language".

It may be stated here that the home-language in its relation to the child would often in fact appear to be English, even when the parents use Welsh in addressing each other, since English is the language which the child uses in speaking to its parents and its brothers and sisters and is frequently the language used by the parents in speaking to the child.

We have found no reason to modify the view that the chief function of the infant school is to reinforce the child in its use of the home-language, whether it be English or Welsh. That stands uncontroverted as a general principle, but a rigid interpretation of the phrase "formal instruction" might restrict unduly, and unnecessarily, the efforts of teachers in districts where various degrees of bilingualism already exist and where interesting experiments are being tried.

In support of the general principle, it may be pointed out as one example that, during the past four years, Welsh has been (with very few exceptions) the language of instruction in the infant schools and infant divisions of Cardiganshire—an area where Welsh is predominantly the home language. We understand that the degree of general attainment and mental development observed in infant classes and "standard I" in this area has received the approval of the inspectors of the Board of Education.

The study of English in areas where Welsh predominates, begins generally when the child is between seven and eight, and gradually becomes more intensive. The average progress made is so rapid that the attainments in English by about the age of ten are at least equal to those when English is used as a language of instruction from a much earlier age. Similarly, when English is the child's home language, the

language of instruction in the infant school should be English, and the formal teaching of Welsh may with advantage be deferred until the child reaches the primary school.

There are, however, schools where the problem of two languages is far from simple. In some schools the number of Welsh-speaking children and English-speaking children is approximately equal, in others there is a marked preponderance of one or other. Again, there are individual children who are bilingual even at the age of five. Generally, in such cases, the home language is Welsh, but English influences, outside the home, have been such that these children can understand almost anything said to them in English and can speak the language fairly well.

It would be impossible to offer any general suggestions which would be equally applicable to such a wide variety of cases, but a suggestion which can be made, unhesitatingly, is that all teachers in districts where these conditions exist, should be thoroughly bilingual, so that no child shall suffer, in any sense, through being unable to speak to his teacher in the language that he understands best. Where the numbers of Welsh-speaking and English-speaking children in a school are roughly equal, the formation of "parallel" classes provides a solution, but many schools are too small to permit this. In such cases, a "vertical" rather than a "parallel" classification seems to be desirable, which results in a greater age-range within the two linguistic groups. Teachers in small schools have long been used to this and are solving the difficulty by well considered schemes of individual work carefully supervised.

The problem is more pronounced where the number of English-speaking or of Welsh-speaking children is so small as not to permit of classification, either "parallel" or "vertical", although these children are tenacious of their home language even in the playground where, usually, all language differences among children tend to disappear. In such cases, it is not easy to arrange for this minority to be taught through the language best calculated to promote development, unless the staffing conditions are favourable.

The sound educational principle would seem to be that during these early years, the child should be taught through the language it understands best and that, in the majority of cases, little if anything is lost by deferring the formal teaching of the second language until the end of the infant school stage.

CHAPTER VII

THE STAFFING OF INFANT SCHOOLS AND
NURSERY SCHOOLS, AND THE TRAINING OF
TEACHERS FOR SERVICE IN THEMTHE STAFFING OF INFANT SCHOOLS AND OF
NURSERY CLASSES

(107) In chapter I we have traced briefly the development of the education of very young children in this country, showing how the present infant school methods have grown up; partly from the ideas of Owen, Pestalozzi, Froebel, Dewey and Montessori, and partly from the emphasis on the 3 *Rs* which was prevalent, though not universal, in the 19th century type of infant schools. In our own day, educational endeavour is increasingly directed towards the development of the child through his natural interests, and we have advocated free activity and individual work as our ideal in the infant school.

We recognise, however, that it is exceptionally difficult for even a gifted teacher to realise this ideal so long as she is expected to deal single-handed with a class of fifty little children. And yet this is what a teacher in a large urban infant school may be called upon to attempt. One great obstacle to advance in elementary education in England and Wales has in the past been the large size of classes, and although the last twenty years have seen a steady reduction in the size of classes in elementary schools, this reduction has been more rapid in departments for older children than in those for Infants.

We can find no justification for the view that it is easier, as a matter of class-management, to deal with large classes of young children than with large classes of older children. In our *Report on the Primary School*⁽¹⁾ we recommended that classes should not contain more than 40 children on the roll.

⁽¹⁾ Report of the Consultative Committee on *The Primary School* (1931), page 107.

We recommend the same figure for classes in the infant school, with the proviso that the teacher of the nursery class should be assisted by one or more "helpers" (see §110).

The persons in charge of these classes of young children should, where practicable, be certificated teachers. As we stated in our Report on the Primary School, "it is desirable that ultimately all assistant teachers should be certificated."

The organisation for the teaching of infants varies greatly. In populous areas, the number of young children permits the formation of infant schools or departments under separate head teachers; in less populous areas, there are infant "divisions" which contain more than one class but of which the principal teacher does not rank as a head teacher. In areas containing still smaller schools, usually with fewer than a hundred pupils on the roll, there is only an infant "class": precise statistics are not available, but it is clear that in England and Wales there are some thousands of such schools.⁽¹⁾

We realise that under existing conditions the practice of appointing certificated teachers to all assistant posts in infant "divisions" and in separate infant schools or departments cannot be universally adopted. While we hesitate to lay down any particular ratio for the purpose of guiding authorities as to the minimum number of certificated teachers which should be employed on each staff, lest such a minimum might come to be regarded as a maximum, we would impress upon authorities the desirability of ensuring that in all schools in which the assistant staff numbers two or more, the head teacher should not be, as is sometimes at present the case, the only certificated teacher.

The staffing of small schools containing at most an infant "class" presents some distinctive features. In the very small school under a single teacher the children are taught in small groups or even individually. In two-teacher schools the headmistress generally teaches the older children. One of the advantages of the re-organisation of small schools as primary schools is that the headmistress herself may be reasonably expected to have special interest in the education of the youngest children and some opportunities for supervising their

⁽¹⁾ On 31 March, 1932, there were 11,138 departments of various types with an average attendance of less than 100: of this number, 2,044 were classified in official statistics as "infant departments", and 6,891 were classified as "mixed departments." It is reasonable to suppose that a considerable proportion of the "mixed" departments contained a class or group of pupils below the age of seven.

training. Nevertheless, when the teacher in charge of the infant "class" is not certificated, great care should be taken to select a woman who possesses definite educational qualifications; she should also be temperamentally suitable, and have a real sympathy for young children. We specially commend also the practice adopted by many local education authorities of supplementing the guidance which such a teacher will receive from the head of the school by arranging for (a) visits of observation; (b) occasional exchanges with teachers in larger schools; (c) week-end classes and intensive courses; (d) advice from a visiting expert teacher. *In small schools in which the number of pupils on the roll approaches a hundred, and in which the head teacher may be a man, there will ordinarily be two assistants, one of whom in our opinion should be a certificated woman possessing special qualifications for the teaching and training of the younger children.*

We consider that in areas containing a number of very small schools in which the infant class will not always be in charge of a certificated teacher, the services of an advisory visiting teacher are not less necessary than for some other branches of specialised teaching, such as physical training and the education of mentally deficient and backward children. We trust, however, that if this is done, special care will be taken to prevent the stereotyping of educational method.

Nursery Classes.—Owing to the importance of the early stages of education in their effect upon the later development of the child's mind, character and physique, *the teacher of the nursery class will have special responsibilities in attending to both the physical and the mental development of her pupils. If she is to make adequate use of the nursery amenities that we have recommended, she will require one or more "helpers".* Indeed there was general agreement among our witnesses that in any school or department for children below the age of five in which "nurture" forms part of the task of the teacher, the assistance of the "helper" is indispensable (see § 110 below).

The headmistress of an infant school, especially if it contains nursery classes, in addition to her general responsibilities for the teaching and training of the children, has to co-operate actively with the medical officer and the school nurse, to be the referee in matters of health, and to be prepared at all times to deal with special problems of behaviour; she must become the parents' adviser and friend. While taking an active part in the teaching of the children, and in their training, she must

obviously have the freedom required to carry out the duties arising from her responsibilities for her school or department, which is a place both for nurture and for education organised on free lines.

STAFFING OF THE NURSERY SCHOOL

(108) *The staffing of nursery schools will not differ in principle from the staffing recommended for nursery classes, but the following considerations should be borne in mind :—*

- (a) *When children as young as two are admitted, it is desirable that the teacher in charge should have had special instruction in nursery care during her training-course.*
- (b) *A higher ratio of " helpers " (see § 110 below) should be allowed, (i) where the day is longer, including meal times ; and (ii) where children are admitted at the age of two.⁽¹⁾*

THE TRAINING OF TEACHERS

(109) We have throughout visualised the period of education from the age of two or three to that of seven as a continuous whole and we look forward to a training course which will equip teachers to meet the progressive needs of children between those ages. A sharp division between the training of teachers for service in nursery classes or schools and in infant schools seems to us inadvisable. A little more emphasis might be laid on the nursery side for those dealing with children under five, and on the scholastic side for those in charge of children between five and seven, but such emphasis or selection of studies should not exclude the great field of common knowledge and common understanding which all those who have the training of children under seven will require.

It is important that teachers in infant schools should have had some knowledge of the various stages in a little child's development. The difficulties of the child of six or seven should be seen in relation to those of the child from the earliest age. Teachers will be better able to handle with understanding the problems that arise if they study them in

⁽¹⁾ Part-time assistance will be required for the preparation of meals, etc. " Caretaking " in nursery schools is of special importance (see chapter VIII, § 120).

their sequence. This is one reason why we have elsewhere advocated the establishment, wherever possible, of a model nursery school in which the methods of dealing with very young children may be studied by teachers from neighbouring infant schools.⁽¹⁾

The first essential for a teacher of young children is that she should have the right temperament. A teacher of young children should not only have a real love and respect for children, but should be a person of imagination, understanding, sympathy and balance. She has to be ready to leave the child to his own devices when it is desirable to do so, but to be prepared to give help and reassurance when required. The atmosphere of happiness and security is established by her, and on her devolves the task of directing the children's activities. She has to encourage children to recognise the rights of others, and to be herself a friendly member of their group ; to help them to develop their power of concentration, responsibility and initiative ; to give them some standard of right and wrong. She builds up in them regular physical habits and control ; she helps to form their taste and sets them on the path of intelligent observation ; she trains them in the way of experiment and discovery, and gives them much of their vocabulary. The possession of a pleasant voice is of the first importance : her manner of speech, her articulation, and her choice of words, will serve as a model for the children who are learning from her how to talk and read. Natural gifts are not enough : such work as hers will demand wide and thorough theoretical knowledge and also the ability to apply this knowledge in actual experience with particular children. Child study—the study of children's mental and physical development—should form the basis of her training. Her studies in psychology should be connected directly with descriptions and observations of the actual behaviour of children. The young teacher in training should study the stages of development in children up to the age of seven with due regard to every aspect of growth. She should learn to note progress, to observe any signs of defect, and to keep records. She should gain some insight into the emotional problems of little children and learn how to handle their crises. It would be well that she should also pursue the study of a particular subject for its own sake, thus keeping alive her intellectual interests. In particular she should develop any

⁽¹⁾ see chapter V, § 81.

gift she may have for music or art ; while handwork and nature study will form part of her normal course of study.⁽¹⁾

The general scheme for training intending infant teachers varies in different training colleges. In a few the infant teacher is trained to teach children between the ages of two or three and seven or eight ; in others to teach children between the ages of five and eleven, with some emphasis on the special requirements of children between the ages of five and seven or eight⁽²⁾. In the latter case the teacher is equipped to teach in either infant or primary schools. This wider range of training has been of value in the past in facilitating interchange of teachers between infant and primary schools, and has thus contributed to the unity of the teaching profession. It also avoids the danger of regarding the growth of the child as a succession of definite stages instead of a continuous whole.

It does not follow, however, that the more specialised training will necessarily tie the teacher to service in a particular type of school. A knowledge of children, their growth and their mental processes, should be the basis of all training. The training college can only prepare the teacher for the practice of a craft which has still to be learnt in the school of experience : year by year the teacher will place more reliance on her actual experience. If she has a knowledge of fundamental principles, it is for her to practise an honest self-criticism, and to evolve her own methods. It is what she makes of herself that will ultimately determine her fitness or otherwise for teaching in a

⁽¹⁾ In this connection we welcome the widening of the secondary school curriculum and the developments in the teaching of music and art in secondary schools during recent years. We realise that these developments have not been introduced for the benefit of the future teacher of young children ; they are the logical outcome of the principle that a girl's education should follow her natural bent, in whatever direction that bent may lie. But the infant schools stand to gain much from this growing recognition that there are diversities of gifts, artistic and practical as well as academic ; for artistic and practical gifts are a particularly valuable equipment for the teacher of little children. Music and art are now included among the options which may be offered in school and higher certificate examinations. We welcome every encouragement offered by schools and examining bodies to girls whose gifts lie in this direction to continue the study of these subjects during the whole period of school life.

⁽²⁾ see, for instance, *University of London Training College Delegacy Regulations for the Examination for the Teachers Certificate*, 1934 (§ 5 (b) (ii), paragraph 3)—

"*Special Course C.*—A course suitable for students who are preparing to teach young children. This course may be adapted to give special preparation for work (i) in Nursery Schools and Infant Schools, or (ii) in Schools for Infants and Junior Children."

particular type of school ; and the good teacher will not find that the specialised training of her early days will unduly limit her sphere of work.

Some of our witnesses thought that the real difficulty in the training of infant teachers is that the two-year course is too short to allow of a comprehensive preparation. One solution of the difficulty might be an extension of the course to three years.⁽¹⁾ This may be impracticable under present economic conditions. In the meantime special importance attaches to the use which is made of the young teacher's "probationary year". The probationary period of one year's teaching service in a public elementary school specified in Schedule I, § 4 of the Code⁽²⁾ is, or should be, a further year of practical training. The necessity of appointing teachers to vacancies as they occur, doubtless renders it difficult in practice to ensure that young teachers are appointed only to those schools which are most suitable for them. Nevertheless, *we hope that authorities will keep in mind the desirability that young teachers who have specialised in infant school work should, during their probationary period be placed in infant schools or in primary schools under sympathetic head teachers who will encourage them to develop and carry further the training which they have already received.*⁽³⁾ We fully appreciate the difficulties that confront authorities, and more particularly county authorities, in this matter, owing partly to the small size of many of the rural primary schools, and partly to the conditions governing the appointment of teachers in non-provided schools. Nevertheless, we would suggest that even in county areas some attempt might be made to arrange that young certificated teachers who have specialised in infant work, should pass their first years in the profession in circumstances calculated to ensure that the best use is made of

⁽¹⁾ The Rachel McMillan Training College at Deptford has in fact a three year course, two years of which are recognised by the Board of Education for purposes of grant.

⁽²⁾ Schedule I, § 4, of the Code for 1926 runs as follows :—

"Recognition in any of the capacities aforesaid shall lapse from such date as the Board may fix if, at the end of a probationary period of one year's teaching service in a Public Elementary School, the teacher fails to satisfy the Board of his practical proficiency. The probationary period may be extended by the Board in exceptional cases, or may be waived by them if they are otherwise satisfied of the teacher's practical proficiency".

⁽³⁾ In this context, it should be mentioned that in some areas an officer has been appointed to supervise young teachers and to see that they are working under suitable conditions.

their college training. It is abundantly clear that the present rather haphazard methods of allocating young teachers on their first appointment leads to much discouragement and loss of enthusiasm when, as not infrequently happens, they are called upon to work under difficult or depressing conditions.

Once again we would call attention to the excellent results which have been obtained from the intensive courses and week-end classes organised by the Board of Education and the local education authorities.

We consider that all the recommendations we have made regarding the personal qualities and training qualifications of teachers in infant departments apply also to those in separate nursery schools. The superintendent will have younger children in her care and she will have them for a longer time including the mid-day meal. *We consider it advisable that the superintendent of a nursery school should have been trained at a three-year college, or should have taken a "third year" in order to specialise in the charge of very young children, or should have had considerable experience in their care and teaching.*

"HELPERS" FOR NURSERY SCHOOLS AND NURSERY CLASSES

(110) Reference has already been made to the opinion of many of our witnesses that "helpers" are a necessity in schools which contain large numbers of children under the age of five. "Helpers" will be girls who have attended school up to the age of at least fifteen years; their employment as "helpers" should cease at the age of eighteen or nineteen. In assessing the qualifications for such work, the appointing body should have particular regard to the girl's aptitude for dealing with young children, to any evidence of vocational impulse, and also to the bearing which work in nursery schools and classes may have upon her future occupation.

The proposal to appoint "helpers" involves the introduction into the work of the schools of an element which is in the strictly technical sense a non-teaching element. A "helper" who shows special aptitude for dealing with young children, might be allowed the opportunity of continuing her general education with a view to qualifying as a teacher; but only in rare cases could "helpers" be expected to enter a training college and become certificated teachers. If the position of a

“ helper ” were regarded generally as an avenue to the teaching profession, the ranks of the supplementary, or at least of the uncertificated teacher, would be swollen not only beyond the desirability, but far beyond the possibility, of employment.

The plain fact is that employment as a “ helper ” must not be regarded as offering a guarantee of ultimate employment as a teacher. The question remains as to what the future may hold for such girls. They will have been educated in infant care, and may later become children’s nurses, welfare workers, or hospital nurse-probationers. The daily association with teachers skilled in infant care, specially devoted to problems of physical and mental growth in the young, will give them a valuable fund of general knowledge and experience. The remunerative positions to which this knowledge and experience will lead in later life may, however, soon reach saturation point.⁽¹⁾

So long as the number of the nursery schools or classes for children below five or six years of age remains small, the problem remains relatively simple. If, however, the number of such schools or classes were greatly increased, or if the number of “ helpers ” allocated to each qualified teacher were made unduly high, the problem of the future occupation of “ helpers ” might present serious difficulties. The local education authority may provide them, and indeed must provide them, with continued education related to the work they are doing ; but it cannot be responsible for their employment after the age of eighteen or at latest of nineteen years. On the other hand, the local education authority must not, as an effect of its own administration, swell the number of “ blind alley ” occupations. The clear duty of the authority is to meet the needs of its schools ; but it has a second duty which is no less clear, not to introduce into those schools in any capacity girls who will need remunerative employment at the age of eighteen or nineteen, and who may miss the chance of such employment through being side-tracked in early life. In this particular respect, consideration of the needs of the schools must be qualified by consideration for those who work in the schools. When the measure of “ helpers ” reaches that quota which the authority, in surveying the economic conditions of its area, considers to be reasonable, some other means must be taken of meeting the needs of the schools.

⁽¹⁾ In Manchester, there are 18 “ student nurses ” engaged in certain of the 60 nursery classes. A brief description of the “ Manchester Scheme for Student Nurses ” will be found in appendix V.

These other means may not be equally effective, because the spirit of youth and the lively apprehension of youth are qualities of the highest value in this class of worker.

So far, we have considered the position of the “ helper ” merely in relation to future remunerative employment in public or private service. This is not the only consideration. It is possible that “ helpers ” may also be obtained from among those girls who are remaining at home and who will later have the care of a home, and are not intending to take up an outside occupation.

There may be another possible source of supply. Girls who are still at school (some of whom may already have passed the school certificate examination) and who are taking a course in housecraft and domestic science, or are contemplating future employment as hospital nurse probationers, children’s nurses, or nursery governesses, might usefully be attached in relays to a neighbouring nursery school, or nursery class in an infant school, and there receive part of their practical training. The practising periods would have to be so arranged that the work of the nursery classes was not embarrassed by too frequent changes of “ helpers ” ; it is obviously essential that children should not be exposed to the strain of being superintended by a personnel appearing at irregular intervals and constantly changing. Care would also be necessary to ensure that the pupils’ practice as “ helpers ” was properly integrated with their general studies. The supply would be limited by the obvious condition that the nursery schools or classes at which the girls attend for practical work would have to be reasonably accessible to their own schools.

Finally, in large areas there will always be a number of intending teachers who have left school after having gained their first school or higher school certificate, and who are awaiting entry to training colleges. During this short interval such girls might be employed temporarily in nursery schools or classes as “ helpers ”.

Under such conditions and with such qualifications as we have mentioned, we recommend the employment of “ helpers ”.

CHAPTER VIII

PREMISES AND EQUIPMENT OF INFANT AND NURSERY SCHOOLS

HISTORICAL NOTE BEARING ON SCHOOL BUILDINGS FOR YOUNG CHILDREN

(111) In view of the fact that school buildings of an early type are still in use for the education of young children in many parts of the country, it is of some interest to trace briefly the development of school planning. The earliest kind of school building usually had one large oblong-shaped schoolroom, its windows about six feet from the floor. The floor itself inclined slightly from the master's desk to the opposite end of the room, or ended in a gallery. The design was usually ecclesiastical in character, of a type reminiscent of the Gothic revival, with stone-mullioned or iron-framed windows glazed with diamond-shaped panes. Even as late as 1870 the ordinary school buildings had not evolved beyond the simple type which consisted of a main schoolroom sufficiently large to accommodate nearly all the pupils, together with one or possibly two classrooms, provided in most instances with a gallery. The main room was usually divided into compartments by movable screens or curtains, and in one or more of these compartments some of the younger children were taught by pupil teachers or monitors.

In 1871 the Committee of Council on Education issued a set of rules to be observed in the planning and fitting up of schools. These rules contained model plans for schools of different sizes. The general type showed a long, narrow mainroom, or, where the number of children to be accommodated was large, an L-shaped room, so arranged that the head teacher standing at the angle could readily supervise both wings. There was usually one classroom for each department. As we have pointed out in chapter I, the Building Regulations of the Education Department and contemporary works on school architecture accepted as axiomatic the distinction between the Infant School and the "Graded School" with its six standards. For instance, the rules to be observed in planning and fitting up schools issued by the Committee of Council on Education in 1871, stated that infants should

never be taught in the same room with older children, and this provision reappears in a more explicit form in later issues of these rules down to the first decade of the present century.

In 1871 the newly constituted London School Board, after long consideration and an inspection of school buildings in Prussia, decided to build a school with separate classrooms each for 80 children under separate teachers, together with a general schoolroom or central hall, which would be available for one class. The "Ben Jonson" School was built on this principle at Stepney in 1872. The new design, which was applied in the "Ben Jonson" School only to the departments for older boys and girls, did not at first meet with success, although it was the prototype of the popular "central hall" school. At that time, the central hall was held to be of little practical value, and the series of separate classrooms proved to be unsuitable for the system of teaching then in vogue. In general the type of plan providing a large schoolroom with long narrow rooms in which several classes could be placed, held the field. The consequence was that large numbers of school buildings of this kind were erected all over England and Wales by the new School Boards and by managers of voluntary schools. The type, which is peculiar to this country, was devised to meet the pupil-teacher system of the day; but, as the number of qualified teachers increased, the demand for separate classrooms became more apparent, and led about the year 1881 to the "central hall" school described above, with a separate classroom for each class; and this became the generally accepted model till after the passing of the Education Act of 1902.

The establishment by that Act of local education authorities responsible for schools over large areas, and the subsequent appointment of salaried school architects and medical officers, soon led to systematic investigations into problems of lighting and hygienic conditions in schools. The central-hall type of school was superseded by the "spread-out" single-storeyed building with all the rooms cross-ventilated into the open air, and with a hall centrally or conveniently placed but isolated from the classrooms. This was evolved under medical influence from the "special schools" built for ailing children, and it lent itself readily to adaptation as a complete "open air" school, by which is usually meant a building that opens fully on at least two sides, with a verandah. The first school cross-ventilated and with a separate hall was built in 1905, about the same time as the first experimental open-air

remedial school was opened at Charlottenburg, and gradually in a number of different types it influenced the designs for public elementary schools in general. Such premises are more closely suited to the requirements of young children than were schools of the older kind.

EXISTING SCHOOL PREMISES FOR CHILDREN BELOW THE AGE OF SEVEN

(112) This brief summary of the history of school design in England and Wales shows that the infant school has in the past been regarded as differing from the school for older children only in the age of the children for whom provision had to be made. We have already pointed out that a sedentary life is exceedingly unnatural for children of infant school age, and that freedom for movement and opportunities for exploring the world through the senses are the prime requisites for the growing child. One of our witnesses has said, "the ideal Infant School is not a classroom but a playground, that is to say, not a limited space enclosed by four walls and a ceiling, but an open area . . . where the interests natural to this biological stage of growth can be stimulated and pursued."

This is a hard saying, and particularly hard when we apply it to the school in a crowded or built-up area, though Margaret McMillan has shown how it can be attempted in so difficult a district as Deptford. The two-decker or three-decker schools of London and other large cities, designed to economise in the cost of site, impose a terrible handicap on the infant department. Compelled by regulation to occupy the ground floor, the younger children are deprived of their proper share of light, air and quiet, while the plan of the department is necessarily governed by the plan of the upper floors. Even in schools of a later type, the plan of the building was much the same for infants as for older children; the hall indeed was replaced by a smaller playroom; but the only real difference was in the height of the window sills and in the lighting, which was adapted to the grouping of children round tables rather than in serried rows of desks.

Although, as we have seen, the general planning on "open air" principles has now resulted in schools that are more closely adapted to the needs of little children, the fact remains that *the design of the ordinary infant school is not yet in complete harmony with modern opinion regarding its function and*

activities. The evidence indicates that local education authorities realise the important part which is played by the premises, the equipment, and, above all, the precincts of the school, in the physical and mental development of children below the age of seven. We hope that they will keep in mind the radical change of attitude towards the requirements of infant education which is implied in the passage we have quoted above, and will regard it as an ideal to be ensued, both in the adaptation of old buildings and in the construction of new schools, so far as local conditions will allow.

THE NEED FOR ADEQUATE SPACE IN INFANT SCHOOLS

(113) The earlier Codes regulated the floor space in an infant school according to the size of the desk. Before 1st January, 1890, the floor space of rooms used for teaching was reckoned at a minimum of 8 square feet per child⁽¹⁾; on that date the minimum for new and altered buildings was raised to 9 square feet; and in 1925 to 10 square feet, which is the requirement at present in force, although the former allowance of 9 square feet for each younger child still obtains in many infant classrooms erected before 1925.

Nearly all our witnesses emphasised the need for a revision of the present basic allowance for assessing the accommodation of infant schools and departments. The need for more physical activity on the part of children and for individual attention on the part of the teacher, and the modern practice of teaching and training young children in smaller groups, justifies *a more generous allowance of floor space for infants than for children in primary schools between the ages of seven and eleven.* Moreover, the replacement of fixed desks by tables and chairs, and the more liberal supply of storage cupboards which have become usual in infant classrooms, have reduced the free floor space; it is common experience that the basic allowance is inadequate where rooms have to be used for the midday sleep of the youngest children.

⁽¹⁾ Among the conditions for grant to public elementary schools specified in Article 17 of the new Code of 1871, is the following (Article 17 (c)) :—

“The School premises are healthy and contain in the principal schoolroom at least 80 cubical feet of internal space, and in the schoolroom and classrooms at least 8 square feet of area for each child in average attendance.”

It was repeatedly pointed out by our witnesses that in many infant school buildings there is an increasing amount of surplus accommodation owing to the declining birth rate, to the re-organisation of schools, and in many parts of the country to the movement of population. Two lines of policy for using this surplus accommodation, which in some cases may be alternative, accordingly present themselves to the local education authority : (a) the provision of more adequate accommodation for children between the ages of five and seven ; (b) the utilisation of vacant floor space for nursery classes.

OTHER GENERAL REQUIREMENTS FOR CHILDREN BELOW THE AGE OF SEVEN

(114) (i) The type of garden-playground which we have already mentioned, is essential to the education of young children as we conceive it. *In all new infant schools and departments, a separate playing-space should be provided. Where, as in old buildings or on existing sites, this is impossible, the playground should be reserved at stated times for the younger children.*⁽¹⁾ It is most important that the younger children should not be deprived of their "play", or be crowded into corners or forced out of the way, owing to the continuous use of the playground for drill and games by others. The playground should be placed preferably on the sunny side of the building ; if this brings it directly under the classroom windows, a flower-garden may be interposed. The uses of such a garden are discussed in chapter VI.⁽²⁾ If there is insufficient space for a garden, the margins of the playground may be laid out in beds for flowers, plants and shrubs. Where practicable, part of the playing space for infants should be a grass-plot.

(ii) *In new buildings the sanitary arrangements as well as the lavatories should be placed within the school, for the sole use of the infants.* Otherwise the training of young children is hampered, and the care and supervision of offices and lavatories is made difficult. *The school lavatories should be*

⁽¹⁾ It is of interest to note that section 21 (b) of the *Code of Regulations for Public Elementary Schools* (1926) runs as follows :—

"The recreation period for classes in which the majority of the children are under five years of age must be fifteen minutes and may be extended to half an hour, and for other classes must be ten minutes. Further recreation must not be reckoned as part of the secular instruction."

⁽²⁾ chapter VI, § 90.

provided with an adequate supply of hot water, and " safety " taps should be fitted in the system.

(iii) The planning of the offices, lavatories, cloakrooms, store cupboards, and shelves in infant schools, and the height of dados and door handles should be governed by the needs of the smaller children. *Special regard should be paid to this in remodelling old school buildings, originally designed for older children.*

(iv) *The amount of educational apparatus now required for the training of young children necessitates a more generous provision of storage space than was usual in the older type of infant school, and also a different type of cupboard for the children's use.*

(v) *In all school buildings designed for young children it is desirable to provide a small kitchen.*

(vi) Suitable drying rails should be placed in the lavatory attached to the cloakroom, or preferably in a separate drying-closet. Storage for overalls, brushes, and other personal belongings may be provided in the cloakroom, the slippers being kept in racks below the cloak rails. A space of 18 inches between each cloak hook should be insisted upon, at least in new buildings.

(vii) The internal decoration of schools for young children has been a subject of many recent experiments. The general opinion of our witnesses was that fresh harmonious colours had a marked effect on the spirits and general tone of the children, and were preferable to the monotonous dark green or dark hard-wearing red which has been almost traditional up to recent years. It is, however, doubtful whether too elaborate a colour scheme in any room is advisable ; it is liable to clash with the bright pictures that are now so striking a feature in many infant classrooms. By the time that the pin-rails for children's work are installed, the pictures hung, the cupboards placed in position, and the wall blackboards fixed, any colour scheme becomes fragmentary. A " sunshine " colour over-walling, with as bright a dado as possible, is preferable to a more elaborate scheme of decoration. The practical knowledge and experience of the architects as to the wearing qualities of colours and their surface finish should be brought into account, as well as the artistic and educational value of any proposed colour scheme for the rooms. *We accordingly suggest that the local education authority might be well advised to form a reference committee consisting of teachers (including art teachers) and representatives of the architect's department.*

ADAPTATION OF OLD SCHOOL BUILDINGS

(115) Old school premises in which floor space is available may be remodelled by a resourceful architect for the education of young children, though the result may not conform completely to the most modern standards. In adaptations of this character, it should be possible to find a portion of the building which can be reconditioned for the purpose of a nursery class. As a rule, in existing urban school premises, there will already be rooms large enough to provide the ample space that is required for the nursery playroom, and also rooms which, although too small for use as classrooms, can be readily utilised for special cloakrooms, lavatories, and kitchens. The provision of suitable indoor offices, either by internal reconstruction or by adding a sanitary annexe, is possible where there is a regular supply of water and an adequate system of drainage.

In country schools the problem facing the local education authority will be to use the available space to the best advantage, and to brighten gloomy classrooms by admitting more fresh air and sunshine. The window heads should be carried up well into the height of the rooms and the sills cut down low enough for small children. Some of the windows might be cut down nearly to the floor level and so form exits to the garden. When the whole of one side of a classroom is made to open in the form of collapsible sliding partitions, french windows, or glazed windows opening in "stable door" fashion, it is important to provide ventilating lights above a transom bar.

The heating, lavatory and sanitary arrangements should be assimilated to those of new school buildings so far as the conditions will allow.

THE PLANNING AND ARRANGEMENT OF NEW INFANT SCHOOLS

(116) Young children should spend their school hours as much as possible in the open air. The fundamental importance of this, and its intimate relation to all modern conceptions of infant education, we have already emphasised in section 112. Yet, in urban areas, if the schools are to be near the homes of the children, the choice of site is often restricted. Where a choice is offered, the conditions are that the site should be as open and as sunny as possible, reasonably quiet, fronting

on to a side road, and, above all, that it should be large enough to provide an open area which will serve as garden and playground. As regards the building itself, the architect's problem will be to ensure that there shall be really adequate cross ventilation throughout, and ample sunlight for every room during the morning hours. *The essential conditions of fresh air, sunshine and light, will best be secured by what may be described as semi-open-air buildings*, provided with open verandahs, and with windows which extend from the floor to the ceiling on one or even on two or more sides of the classrooms. Teachers should, however, realise that the temperature, lighting, and movement of air that are most comfortable for adults may sometimes not be the most suitable for young children.⁽¹⁾

Numerous experiments have been conducted in the use of different materials for the construction of school buildings. "Semi-permanent" buildings of light construction have been recognised by the Board of Education as part of the permanent school supply; and such buildings, if approved, are exempt from the necessity of conforming to local building byelaws. Many of the difficulties which are at present experienced by teachers in training and teaching very young children are largely due to the limitations of old buildings which are too solid to wear out. Lightness of construction, therefore, is to be commended, whatever methods be adopted. As an example of methods alternative to the usual brick or stone, it may be mentioned that timber-frame buildings erected on brick or concrete foundations and treated with preservatives will under normal conditions have a useful life of from thirty to fifty years and have not in practice been found unduly expensive to maintain. Provided that such buildings are properly constructed, they may be made as comfortable for general use as other types of structure, but they must have plenty of suitable exits for use in case of fire. There should not be any substantial modification of the ordinary arrangements for the provision of heat and light in a building of light construction. The offices, however, should be in brick work. On the whole, it seems that despite the somewhat higher annual maintenance charges, the less solid types of structure, in addition to being more economical in initial cost, may be found more adaptable to future changes in the methods of training and teaching young children.

⁽¹⁾ see chapter II, section 43.

In addition to classrooms, staff rooms, store rooms, and cloakrooms, a new infant school should contain a hall which will be used more as a playroom than for purposes of assembly, it should, however, be large enough for the assembly of all the children when required. A small kitchen should be provided. Indoor lavatories and offices are essential. It is desirable also that the youngest children should have direct access to their room through a cloakroom devoted exclusively to their use.

Finally, in the planning of new infant schools, the other general requirements for children below the age of seven which we have mentioned in sections 113 and 114, especially adequate floor space, storage for personal belongings and educational apparatus, and the suggestions which we have made as to the internal decoration of schools, should engage the close attention of the architect.

ROOMS FOR NURSERY CLASSES IN INFANT SCHOOLS

(117) In the following section we describe in some detail premises for nursery schools. These details are equally applicable to nursery classes, in so far as the general plan of the main school building allows of their adoption. Thus the planning of a nursery school in separate sections, which we there mention, will also be suitable for nursery classes. Even in floor space there is no great difference between the requirements of each type. Some of our witnesses held that 20 square feet per child was the minimum area which children in a nursery class needed; the majority, however, considered that 15 square feet for each child would be sufficient. Our witnesses, however, insisted that the floor space in each classroom should allow of the children sleeping indoors on stretcher-beds. In these and other respects the rooms for nursery classes conform to nursery school conditions.

PREMISES FOR NURSERY SCHOOLS

(118) Infant and nursery schools have been regarded as two entirely different types of building. Provision has been made for both types, mainly in new buildings, but sometimes in adapted premises. Up to the present the number of nursery schools erected has been too small and of too varied a character to enable a fair average cost to be quoted, but it is clear that the nursery school has in the past generally cost considerably more

per place than the infant school.⁽¹⁾ In the actual character of the buildings, however, there would appear to be no justification for any substantial difference in the cost per head of these two kinds of school. Any such difference will be due mainly to the smaller size of nursery schools, to the greater floor space hitherto provided, and to the additional amenities requisite in buildings in which children remain for the whole of the day. In small schools such additional amenities add disproportionately to the unit cost.

Though the number of separate nursery schools is comparatively small, there has, nevertheless, been considerable experiment in recent years in the types of building erected. In some instances satisfactory results have been obtained by adapting an existing dwelling house or houses for the use of children under the age of five, especially where such houses have some garden space. The size of existing nursery schools varies widely. Probably the most economical school to build, and one which in other respects is the most suitable, is the nursery school for about 160 children, which allows in its classrooms at least 15 square feet of floor space for each pupil. Nursery schools in the first instance will be required in congested slum areas,⁽²⁾ and the choice of sites reasonably accessible to the homes of the children may not be easy. Where such a choice is possible, the site should be large enough to allow for classrooms to face south-east or south, with a free circulation of air, and to allow for flower beds, and for outdoor recreation. Nursery schools have been built on as little as one-eighth of an acre, and on as much as three-quarters of an acre, but, in general, a desirable minimum is half an acre for 160 children. In very congested areas, roof garden sites have been found practicable so long as adequate precautions are taken for safety in case of fire, and access is reasonably convenient.

The nursery school building should not be "institutional" in character, but as far as possible of a light and open "garden pavilion" type.⁽³⁾ It will consist of a number of class (or

(1) Exclusive of the cost of site, furniture and equipment, and of architect's fees, the cost of nursery schools in new buildings, of which plans have been submitted to the Board of Education during the last few years, has ranged between £30 and £50 per head, the lower limit being attained in those nursery schools which provide accommodation for 160 children and upwards. The cost of infant schools at the present time (with normal construction) is about £26 per place.

(2) see chapter V, §§ 80 and 81.

(3) see also chapter V, § 75.

play) rooms, rooms for the staff, a room for observation and medical treatment, a kitchen, lavatories and offices. The ideal school is the light single-storey building of the open-air type set in a garden playground ; the playground is centrally placed between the classrooms and the administration block, the latter usually being in the rear facing north or north-west. The class (or play) rooms may be arranged as separate shelters or as twin rooms divided by a party wall like semi-detached villas.⁽¹⁾ Such a design will enable three sides of every room to be thrown entirely open, either by means of sliding partitions or by means of openings of the " stable-door " or french window type. Height is not of much importance in open-air rooms. Floor heating is convenient but somewhat expensive. Panel heating in the walls or ceilings, or both, has been tried with success, and slow combustion stoves, gas fires, electric heating⁽²⁾ or even open fires are possibilities.

INTERNAL MOVABLE EQUIPMENT

(119) *Infant Schools*.—The requirements of the modern infant school in the matter of movable equipment, educational apparatus and consumable material, are in general well known, and we need make no more than a passing reference to them. Fixed desks have generally given place to light tables and chairs, graded in height.

Nursery Classes and Nursery Schools.—Those of our witnesses who had a first-hand knowledge of nursery schools and classes informed us that the equipment for training and teaching children under the age of five can, in the main, be of a simple character, provided always that the floor space is sufficient to allow for free activities. *In addition to small tables and chairs, folding stretcher-beds of light metal or wood are indispensable.* The teaching equipment will consist normally of picture books, apparatus for sense training, plastic material for handwork, dolls and dolls' houses, railways, rocking horses (not too large) and other toys, bricks of different types, beads and *abaci*. A piano, and some instruments of percussion will also be required. In the playground and garden there will be

⁽¹⁾ The shelters at the Rachel McMillan Nursery School, Deptford, are self-contained, and in addition to space for play and other activities each shelter includes a bathroom, lavatory, and offices.

⁽²⁾ Experience has shown that at the present rates at which power for heating can be obtained, electricity can hardly be regarded as an economical possibility, but it is hoped that development of the public supplies will make it so in the not distant future.

balancing boards, swings, small wheelbarrows, and small garden tools. Gymnastic or other apparatus in the use of which the children might overstrain or hurt themselves should be avoided. There will be special arrangements for meals and for personal hygiene. The problem of the supply of towels (unless paper towels are used), and of other requirements, such as overalls, slippers, and brushes, can in many cases best be solved by the voluntary co-operation of the parents.⁽¹⁾ The medical room should be furnished with such equipment (including apparatus for weighing and recording the height of the children) as the doctor and nurse may require.

SCHOOL MAINTENANCE

(120) Diligent and conscientious caretaking contributes much to the health and habits of the children in all types of school. *In infant and nursery schools the thorough and frequent cleansing of the cloakrooms and offices, and of the floors, walls and furniture in the classrooms has a particular importance ;* and special care should be exercised in the selection of school "caretakers" and in the organisation of their duties.

BOOKS FOR INFANT SCHOOLS

(121) Our witnesses urged the importance of supplying the infant school with suitable books, including picture books, story books, and the "work" type of reading book.

One head teacher writes :—"The greatest handicap in the infant school is often the lack of an adequate supply of books" . . . "I should like to emphasise the value of an infants' library, both for children below the age of five and children over that age. The lack of suitable story books and pictures limits the child's imagination, especially when the home environment is unfavourable." Another head teacher writes :—"The use of a small lending library, consisting of picture books and supplementary readers, serves to help and encourage the child, and gives the parent an opportunity of ascertaining the capabilities of their children in reading, and suggests to them the kind of reading matter that is appropriate. The help and interest of parents and older brothers and sisters may often be enlisted in this way."

On pages 24 and 25 of our *Report on Books in Public Elementary Schools* (1928), we urged that infant departments

⁽¹⁾ See chapter IV, § 70.

should be adequately equipped with the following types of books: (a) Picture books; (b) the "Work" type of reading book; (c) Story books.

It may be of interest to summarise briefly this passage of the Report:—

(a) *Picture books*.—A good supply of picture books is essential, since children must learn the names of things before they learn to read those names. Such books should include pictures of things with which the children are familiar, and also pictures of what is outside their immediate experience. The pictures should be clear and simple in treatment, and should as a rule be coloured, though the less realistic black and white illustration has an educational value of its own.

(b) *The "Work" type of reading book*.—Young children realise the practical value of reading by interpreting written instructions, which should be concerned with things to do or to make. Pictures to paint or to cut out, together with printed directions, are published in book form, but many teachers prefer to make their own sets, and in such cases the necessary material should be provided.

(c) *Story books*.—The interest of a continuous narrative offers a strong inducement to children to learn to read, and they are soon ready to enjoy the complete story book. The best introduction to the use of a library in later life is a table in the corner of the classroom, from which each child may choose its reading book. Nature stories, fairy tales, stories of heroes, stories of how other children live, should be included in such a collection, and each book should be complete in itself and of reasonable length. The books should be well printed and illustrated, and should be so well written that the children will be attracted to read them again and again.

These three types of book provide for individual reading, allowing the child to go at its own pace. A certain number of class books will also be required in accordance with whatever method is adopted for teaching the children to read. These should be graded, well written, and printed in clear type. *The supply of class books is generally adequate, but there is a greater need for books to meet the requirements of those schools where individual methods have been adopted.* In this context,

it should be remembered that a page of pictures is more quickly understood than a page of print, and that picture books soon suffer from wear and tear. It is important that the child's first associations with reading should not be with a dirty or torn book.

VISUAL AND AUDITORY AIDS FOR TEACHING

(122) Pictorial illustration is essential for young children to ensure any clear mental conception of many of the terms with which they will meet in the course of their lessons or reading, and equipment for this purpose should be generously supplied in the infant school. This equipment should include not only a number of appropriate pictures on the walls of the classrooms, but also a liberal supply of small pictures or illustrations for group or individual use.

The piano has long been regarded as an important part of the equipment of an infant school, and to this must now be added the gramophone. In addition to its value in habituating children to hear simple but beautiful music finely rendered, and thus in leading them to understand and to love music, the gramophone is of real use in dancing and rhythmical work in relieving the teacher from the piano and setting her free to concentrate on the movements of the class.

CHAPTER IX

SUMMARY OF PRINCIPAL CONCLUSIONS
AND RECOMMENDATIONS

(123) The following chapter contains some leading facts and conclusions deduced from the evidence of our witnesses. Those conclusions which involve definite action on the part of education authorities, school managers, teachers and others, are printed in italics as substantive recommendations.

I.—The Historical Development

1. In the evolution of educational theory and practice since the beginning of the last century the conception of the infant school as distinct from the elementary day school was present from the beginning of the movement for making educational provision on a large scale for the children of the poorer classes. Furthermore, the infant school was based on a richer and fuller educational tradition than that of the contemporary monitorial day schools. (Chapter I, §§ 1–10.)

2. By 1870 the value and significance of separate infant schools or of infant classes within the elementary day schools were generally recognised, and the adoption of the age of five as the lower limit for obligatory attendance at public elementary schools in the Elementary Education Act of 1870 made the infant school or department an integral part of the system of public elementary schools in England and Wales. (Chapter I, §§ 11–16.)

3. Since the early seventies a varying, but not inconsiderable proportion of children under the age of five has been admitted to the infant departments of public elementary schools in which provision has been made for them in the form of baby classes. Within the last few years, several authorities have taken steps to convert some of these baby classes into nursery classes by providing a large number of the amenities usually found in separate nursery schools. (Chapter I, §§ 17–23.)

II.—Age Limits and Organisation of the Infant Stage of Primary Education*The Lower Age Limit for Obligatory Attendance*

4. Since the passing of the Elementary Education Act, 1870, the lower age limit for compulsory attendance in England and Wales has been fixed at five. School attendance bye-laws

may provide that parents shall not be required to cause their children to attend school before the age of six.⁽¹⁾ In view of this provision, and of the fact that the attendance of children at school from the age of five has on the whole worked well in practice, *we think that there is no good reason for modifying the existing law.* (Chapter IV, § 64.)

The Lower Age Limit for Voluntary Attendance

5. As regards the question of the lowest age at which children may be admitted on a basis of voluntary attendance to infant schools *we think that the practice of admitting them should continue as at present, and that the arrangement which has been in operation since 1872, under which no grant is paid in respect of children under the age of three, is sensible and reasonable.*⁽²⁾ (Chapter IV, § 64.)

Grant Regulations

6. We think that there is some substance in the suggestion that the expenditure basis of grant assessment, which has been adopted for nursery schools, should be extended to infant schools. Although the actual difference in average attendance for children below the age of seven and above that age is not great, the Board of Education might be well advised to make some allowance for the more frequent absences of very young children. (Chapter IV, § 71.)

The Upper Age Limit of the Infant Stage of Primary Education : Continuity in Primary Education

7. *We adhere to the opinion expressed in our Report on the Primary School that children should be promoted from the infant school or department not later than between the ages of seven and eight.*

As we indicate below, primary education contains phases differing somewhat in content and method. But it is of the greatest importance that the primary stage of education (i.e., from the beginning of school life to the age of eleven) should be regarded as a continuous whole, and that there should be

(¹) This is subject to the proviso that the Board of Education, in considering whether approval shall be given to any such bye-law, "shall have regard to the adequacy of the provision of nursery schools for the area to which the bye-law relates" (see Introduction, p. xiv).

(²) In this respect "nursery classes" differ from nursery schools, since the latter may admit children from the age of two. In a nursery school, however, more complete provision is possible for the training and nurture of very young children.

no abrupt break in the education of children under and over seven, and still less in the education of those under and over five. (Chapter IV, § 65.)

Transfer from the Nursery School or Class to the Infant Department

8. At present the change from the nursery school or class to the ordinary work of the infant school is sometimes too abrupt, both in the general character of the activities and courses of instruction and in the methods of teaching. *All reasonable means should be adopted to ease this transition.* (Chapter IV, § 65.)

Transfer from the Infant Stage to the Upper Stage of Primary Education

9. We reaffirm recommendation No. 6 in our *Report on The Primary School* as to the importance of making the transition from the general treatment and methods of teaching in use in infant schools to those in use in the next stage of primary education easy and gradual. (Chapter IV, § 65.)

10. Where there are separate schools and not merely separate departments for infants, means should be adopted to bring the teachers together from time to time; joint staff meetings will be found necessary in order to ensure that free methods of teaching and discipline are continued, and suitable periods for out-of-door studies and relaxation are allowed, in the classes of the primary school which the children will enter on leaving the infant school. (Chapter IV, § 65.)

The Organisation of the Lower Stage of Primary Education

11. *We reaffirm the recommendation which we made in our Report on the Primary School, that in areas where it is possible, there should be separate schools or departments for children under the age of seven.* We recognise that it is impracticable in the smaller rural schools to establish separate departments for pupils below the age of seven *plus*. We think, however, that in all primary schools (including even small rural schools), there should be a well defined line of demarcation between the younger and older children. (Chapter IV, § 66.)

Retarded Children in the Lower Stage of Primary Education

12. The limitations of the retarded child are not so conspicuous at the infant stage of primary education as at the age of eleven or later. Nevertheless, it is clearly important in

the interest of these children that the main causes for their retardation should be discovered at as early a stage as possible in their school career. Our evidence supports the view expressed on page 36 of the Board's Handbook of Suggestions (1927), that "the question of classification does not, as a rule, become urgent before the backward child has passed out of the Infants' stage. Whilst such children often receive special attention individually, it is rarely necessary to form a separate class for those who are backward."

We emphasise the importance of detecting early signs of retardation in children and of discovering the causes. We consider that separate classes or departments for retarded children in the infant stage are not necessary on educational grounds. (Chapter IV, § 68.)

School Records

13. While we deprecate any attempt to insist on the keeping of elaborate records, *we consider it very important that some simple forms of school record should be regularly made.* Two forms of record are necessary :—(a) Class records of children's work and progress ; and (b) general records of children's development, etc. (Chapter IV, § 69.) (See also recommendation 63 below.)

Co-operation between Parents and the School

14. As a result of effective co-operation between parents, teachers, doctors and school nurses, there has been a marked improvement alike in the health and cleanliness of the children, in the character of their clothing, and in the hygiene of the home.

The character of the school as a social institution, and not merely as a place of instruction, finds expression in this active co-operation and the sharing of common interests. (Chapter IV, § 70.)

III.—The Physical Growth of Children up to the age of Seven

15. The processes of growth which operate in the human organism are more numerous, more delicately balanced, and more rapid during early childhood than at any other period of life. (Chapter II, § 27).

16. The effect of environment is most noticeable at the stage when growth is most active. The health of the mother during pregnancy, and of the child during its early years, are reflected in the physique, constitution, and health of the child in later years. (Chapter II, § 28.)

17. Growth can only take place by the assimilation of food material. It is now generally recognised that an adequate diet must contain a sufficiency of mineral elements, vitamins, fluids, proteins, fats, and carbohydrates. (Chapter II, § 31.)

18. The evidence of mal-nutrition in young children may be observed not only in their general physique and appearance, but in their response to effort. *Inactivity and mental apathy in a child should call for an investigation of his dietary, both in its quantitative and qualitative aspects.* The latter factor is of great importance, since food deficient in certain elements may not only be lacking in nutritive value, but may produce a loss of appetite, which in turn results in the food intake being inadequate. (Chapter II, §§ 35 and 36.)

19. The diet of many children, while adequate in other respects, is often seriously deficient in fats and vitamins. Cod liver oil will do much to supply what is lacking in this respect, but the need for its administration should seldom arise if the child's ordinary diet is varied and fresh. *Where school meals are provided, these considerations should be borne in mind.* The practice which obtains in many infant schools of giving children, particularly those below the age of five, a daily ration of milk in the course of the morning session has been attended with very satisfactory results. (Chapter II, § 37.)

20. The maintenance of health demands that there should be a proper balance between exercise and rest. Any organ of the body which is not given sufficient exercise tends to degenerate, and the value of regular and frequent exercise is now generally recognised. On the other hand, many young children do not obtain sufficient sleep at night, and *it is therefore most desirable that adequate facilities for sleep should be provided for children below the age of five in nursery schools and classes. Facilities for sleep should also be provided for some children above the age of five in infant schools.* (Chapter II, §§ 39 and 40, cf. Chapter VI, § 96.) (See also recommendation 54 below.)

21. The years from the age of one to that of seven are the period during which the infectious diseases of childhood are most prevalent. The risk of the spread of infectious diseases among young children at school is largely reduced when the school buildings are designed on open-air lines and when there is an adequate allowance of cubic space for each child. *The*

most important single factor in reducing the incidence of infectious disease is that the school should be of open-air design. (Chapter II, § 34.)

22. *Teachers in infant schools should be on the alert to detect even slight defects of vision or hearing, or any nervous peculiarities, and should bring them to the notice of the school doctor, as such defects are responsible for much that is mistakenly regarded as "backwardness."* (Chapter II, §§ 41 and 42.)

23. The scientific evidence summarised in chapters II and III shows the great importance of *medical records*. All children who, though not attending nursery schools or classes, continue their attendance at infant welfare centres, or who are supervised by health visitors, should have complete medical records which will be continued on their admission to the infant school. *We think it important that any salient features of the child's physical development, medical history, and home conditions, should be noted also in the teacher's own records. It is essential, however, that when such records are passed on from teacher to teacher any information of a medical character should be treated as strictly confidential.* (Chapter IV, § 69.)

IV.—The Mental Development of Children up to the age of Seven

24. Though, for purposes of scientific study, it is convenient to consider in turn the various aspects of the child's mental development, and to treat separately sensory and motor development, memory, reason, and so forth, it must be borne in mind that these are only scientific abstractions—aspects artificially selected from the whole activity of the child. All the different aspects of his development are intimately and inextricably related. It should also be remembered that any generalisations drawn from the evidence regarding the mental development of children between the ages of two and seven *plus* are based on the average child. (Chapter III, § 46.)

(A) GENERAL MENTAL DEVELOPMENT UP TO THE AGE OF TWO

25. The growth of the child up to the age of two is marked by two very important developments—the acquisition of speech and the power to walk. Their effect on the child's intellect and character are very noticeable. No developments of like importance occur at later stages, and from the age of two there are no sudden changes in the mental development of the child. (Chapter III, §§ 47 and 48.)

(B) MENTAL DEVELOPMENT BETWEEN THE AGES OF TWO
AND FIVE

*The emergence of certain inherited tendencies and their
significance in the child's daily life*

26. During the earliest years certain innate tendencies such as eating, sleeping, excretion, and the exercise of the sensory and muscular organs, determine a large part of the natural activities of the child, and his mental health at this stage is closely bound up with the normal exercise of these functions. *The later emotional development of the child will be considerably influenced by the way in which these activities are treated.* (Chapter III, §§ 51 and 52.)

*The importance of an open air environment for young
children*

27. *In the ordinary urban environment there is little to satisfy the child's natural impulses ; it is important, therefore, to provide an environment which will do so, by keeping the children in the open air surrounded by trees, plants, animals, places that they can explore, pools in which they can paddle, and sand pits in which they can dig.* (Chapter III, § 52.) (See also recommendations 19 above and 47 below.)

Sensory development

28. Between the ages of two and five the child is gaining knowledge about the world around him through his senses, and is learning to exercise these senses in themselves, and more especially the sight, hearing, and touch (which is mainly muscle sense). The child's constant desire to look at things and to handle them should be restricted as little as possible, and *in school the children should be surrounded with objects and materials which will afford scope for experiment and exploration.* The chief need in training the senses is to teach the child to observe with discrimination what was previously unnoticed or confused, and to assist him to perceive what is to be learnt. The essential principles are to keep well within the range of the child's spontaneous interests and to give variety and meaning to his sense perception. (Chapter III, § 53, and Chapter VI, § 86.)

Imagination and thought

29. Until the child has acquired sufficient language to enable him to think conceptually, his mental processes are mainly concerned with perceptions, feelings and fantasies, and his

thinking remains imaginative rather than logical till he has attained the age of six or seven ; but the world of fancy should not exclude the world of reality (see recommendation 37 below). (Chapter III, § 54.)

Emotional development

30. The intensity of the child's emotional life reaches its zenith towards the end of the third year. This has to be taken into account when a child is separated from its home at an early age. When children go to school at the age of three, they generally show a tendency to cling to the grown-ups for attention and shelter, but by the middle of their fourth year they begin to display an interest in other children and learn to play happily among them. The social tendencies have not yet emerged to any considerable extent, and when children of this age form groups, such groups usually consist of two, three, or four at the most, and are very unstable. This stage affords an opportunity for the tactful leadership of a sympathetic teacher, under whose care the group feeling may be sustained with greater stability than if the children were left wholly to themselves. (Chapter III, § 55.)

(C) MENTAL DEVELOPMENT BETWEEN THE AGES OF FIVE AND SEVEN PLUS

The development of elementary psychological capacities : sensation

31. *Touch*.—In the sense of touch the young child in comparison with adults shows noticeable superiority, which is still manifest at the age of seven. Girls are usually more sensitive in this respect than boys. (Chapter III, § 56.)

32. *Hearing*.—The evidence indicates that in general up to the age of six or seven the sense of hearing has not yet reached its maximum power, though there are wide individual differences. The appreciation of rhythm is more acute than appreciation of melody or harmony. (Chapter III, § 56.)

33. *Sight*.—In early childhood the eye is an imperfect organ, naturally under-focussed and ill adapted for close work or fine discrimination. *It is therefore important that children under the age of seven should not be expected to read small print or indeed to do any close work for long periods.* (Chapter III, § 56.)

Accuracy of control of movement

34. By the age of six a child has acquired fairly accurate control of the larger muscles, but control of the finer muscles does not exhibit very noticeable improvement till about the age of eight. *It is accordingly important that during the earlier stages of childhood attempts to develop muscular control should be directed mainly to that of the larger muscles and that fine work with hands and fingers should not be expected.* (Chapter III, § 57.)

Observation and perception

35. At this stage, the child's intellectual activities and most of his direct learning depend on the exercise of the sense organs, particularly those of sight, though touch and muscle sense still play an important part. He takes in general impressions and grasps things as a whole, but requires definite help if he is to compare and discriminate. The power to relate objects one to another and to underlying hidden or abstract causes is only beginning to emerge. His ideas, thoughts and imagination grow mainly out of what he sees, handles and does, and in this process language will become more and more important. Words mean nothing to the young child unless they are definitely associated with active experience. *The right choice of words, therefore, forms an essential part of his instruction at this stage.* (Chapter III, § 58.)

Reproductive imagination

36. Children by the age of seven do most of their thinking in concrete visual terms, and from the age of eight at least usually possess excellent visual memories. On the other hand, there are children whose visual memory is poor. In such cases recourse might be had to auditory memory and to the sense of touch. (Chapter III, § 59.)

Constructive imagination

37. The age of phantasy in most children extends at least up to the age of six or seven. *Scope should still be afforded for "make-believe" in the children's play but their fancy should not be over-stimulated, and should be brought increasingly into contact with the universe of fact, by encouraging them to follow their developing interests among real things.* (Chapter III, § 59.)

Memory, Attention, and Reasoning Power

38. The young child learns more slowly and forgets more rapidly than the older child, but owing to undeveloped reasoning power he relies more on mere mechanical retention. The child's difficulty in committing certain things to memory is partly due to the fact that his power of attention is very limited; *the ideas presented to him should therefore be very simple and few at a time; oral lessons should be short and closely related to the child's practical interests.* He finds difficulty in dealing with abstract ideas and is only beginning to understand the relation of objects in space, while problems of time, except the simplest, are beyond his grasp. Moreover, the ordinary child of seven has only the vaguest notion of the relation of cause and effect. (Chapter III, §§ 60-62.)

Emotional development

39. At this stage of emotional development the child begins to turn from his parents and even from adults generally and to find his chief source of interest either in other children or in the objects of the outside world. A feeling of comradeship with his playfellows begins to develop, which gives him a greater sense of confidence and independence. Those moral values which depend on the recognition of the rights of others develop gradually with the child's increasing independence of his parents from about the age of six, but for some time these values will necessarily remain concrete, immediate and personal. It is clearly undesirable to talk to children too much in abstract ethical language. (Chapter III, § 63.)

V.—The Training and Teaching of children under the age of Seven

(a) The Nursery stage for children below the age of five

40. *The fundamental purpose of the nursery school or class is to reproduce the healthy conditions of a good nursery in a well-managed home, and thus to provide an environment in which the health of the young child—physical, mental and moral—can be safeguarded.* (Chapter VI, § 84.)

41. *The training of the nursery stage must be a natural training, not an artificial one. Its aim is not so much to implant the knowledge and the habits which civilised adults consider useful, as to aid and supplement the natural growth of the normal child.* (Chapter VI, § 86).

42. *The training of the nursery school or class must be carried into the home by active co-operation with the parents of the children.* If it is to be fully effective, it must be practised in the home life of the children. (Chapter VI, § 83).

(b) *The training and teaching in infant schools for children between the ages of five and seven*

43. *It is the special function of the infant school to provide for the educational needs of the years of transition that separate babyhood from childhood, and in particular to supply children between the ages of five and seven plus with what is essential for their healthy growth, physical, intellectual, spiritual and moral, during this stage of development.* (Chapter VI, § 88.)

44. The infant school is concerned with the lower stage of primary education up to the age of seven, and the guiding principle determining the training and teaching given therein is the same principle that we laid down for the primary school as a whole in chapter VII of our *Report on the Primary School* (1931), i.e., "*the curriculum is to be thought of in terms of activity and experience rather than of knowledge to be acquired and facts to be stored.*" ⁽¹⁾ (Chapter VI, § 88.)

45. In the provision of opportunities for further experience and experiment, the infant school must make a delicate compromise between the immediate powers and needs of the child and his future requirements as a potential adult. (Chapter VI, § 88.)

46. Since physical welfare is the foundation upon which mental training should largely be based, and which includes much of the habit and character training and the development of mental intelligence and alertness that is preparatory to the more direct education and training of the mind, *the first place in the training and teaching of the infant school will still, as in schools and classes for children under the age of five, be given to the physical well-being and efficiency of the child.* (Chapter VI, § 89.)

47. *The training and teaching of the infant school should be based on the open-air activities and interests of the children.* (see also recommendation 27 above). (Chapter VI, § 90.)

48. The infant school buildings provide an opportunity for realising a standard of life, for the acquisition of social habits, and for the exercise of unselfishness and consideration for others. (Chapter VI, § 91.)

⁽¹⁾ *Report on the Primary School* (1931), page 93.

49. *Speech training, begun during the nursery stage, should be continued throughout the infant school stage. It serves a double purpose : it helps the child to extend his vocabulary and to express his ideas more freely ; and it acts as a corrective to slovenly and inaccurate utterance. (Chapter VI, § 92.)*

50. *Since it is natural to children to express their sense of rhythm in movement, they should be encouraged to do so in various ways. In particular, grace of movement should find opportunities in the infant school for expression in the joyful dance, not only linked with, but expressive of simple and beautiful music. (Chapter VI, § 93.)*

51. For singing, which has rightly long held a prominent place in the activities of the infant school, *the traditional hymns, nursery rhymes and game-songs should form the natural repertory for the younger children. (Chapter VI, § 93.)*

52. *The infant school should provide an opening for the love of acting, which is a basic interest with most children. Dramatisation helps to develop the power of expression in movement, which on the one hand is closely associated with the development of perception and feeling, and on the other hand affords valuable opportunity for the practice of speech. (Chapter VI, § 93.)*

53. *Constructive work of various kinds should occupy an important place in the activities of the infant school. In general, manual and aesthetic development are better secured when the child is left to make what he likes, how he likes and, within reason, when he likes, than by any set lessons. (Chapter VI, § 94.)*

54. *Up to the age of five children need a sleep during school hours, and other opportunities for repose. The need for mid-day sleep diminishes between the ages of five and six, but throughout the infant stage the child still requires occasions for rest when his limbs and brain can recuperate. During these quiet periods the teacher can tell stories and read aloud to the children, as a mother in a cultured home reads to her children in order to satisfy their love for a story and make them for a time forget in the interest of the narrative the urge to activity. (Chapter IV, § 96.) (See also recommendation 20 above.)*

55. Mental development includes the acquisition of certain forms of knowledge and skill, and in particular the use of the instrumental subjects known as the 3 Rs. (Chapter VI, § 97.)

56. *The child should begin to learn the 3 Rs when he wants to do so, whether he be three or six years old. Only in this way*

will the acquisition of the 3 Rs come about incidentally as a part of widening interests and experiences. (Chapter VI, § 97.)

57. *Reading is incomparably the most important of the 3 Rs, though there are many children who find arithmetic more fascinating.* (Chapter VI, § 97.)

Procedure

58. For the practical purpose of school organisation, it is convenient to classify the aspects of training and teaching roughly under four heads :—

- (a) Religious instruction ; ⁽¹⁾
- (b) Natural activities, including physical training, open-air life, rest and play ;
- (c) Expression training, including speech, dancing and singing, handwork and drawing ;
- (d) Formal instruction in the 3 Rs.

The time available for secular occupations might with advantage be divided more or less equally between (b) and (c) in the case of the younger children, and between (b), (c) and (d) in the case of the older children who have begun the 3 Rs, and in their case the largest share of the time allocated to (d) should be devoted to reading. (Chapter VI, § 98.)

59. A more minute division of the time-table is not advisable. (Chapter VI, § 98.)

60. *It is not advisable to adopt any hard and fast rule for the length of lessons in infant schools.* (Chapter VI, § 98.)

61. *The principle underlying the procedure of the infant school should be that, as far as possible, the child should be put in the position to teach himself, and the knowledge that he is to acquire should come, not so much from an instructor, as from an instructive environment.* (Chapter VI, § 100.)

62. *Educational apparatus has its place in the creation of an instructive environment.* Elaborate apparatus is unnecessary in infant schools. The best apparatus is that which the teacher has designed and made for herself in full conviction of its necessity and with confidence in her own idea. (Chapter VI, § 101).

63. *Through "individual work" the children teach themselves. "Individual work" imposes fresh responsibilities on the teacher, and cannot be carried on effectively unless records of each child's progress are regularly kept.* (Chapter VI, § 102.) (See also recommendation 13 above.)

⁽¹⁾ See footnote ⁽¹⁾ on page 137.

64. *Freedom is essential for the child, and only becomes dangerous when there is nothing to absorb the child's restless activity and provide an outlet for his experimental spirit. (Chapter VI, § 103.)*

65. *The child's progress depends on his acquiring new ideas and new interests at the right moment. The oral lesson holds a definite place in the school procedure, since in this way new ideas and new interests can be effectively introduced with economy of time and effort. (Chapter VI, § 104.)*

66. *Children who are sufficiently level in attainment should be treated as a group for oral lessons and other purposes in which the group forms a more useful unit than the class.*

Group work is also necessary in order to help children to work harmoniously with others and to sub-ordinate their free impulses to the necessity of common action and a division of functions. (Chapter VI, § 104.)

67. *Freedom in planning and arranging her work is essential for the teacher if the ever present danger of a lapse into mechanical routine is to avoided. (Chapter VI, § 105.)*

VI.—The Medical Supervision, Education and Training of Children below the age of Five

Medical supervision for children below the age of five

68. The problem of the physical and mental welfare of children below the age of compulsory school attendance is essentially sociological. Any fundamental attempt to solve it must eventually take account of the provision of better housing conditions for large sections of the population and the consequent improvement in the child's early environment. The systematic efforts which are now being made in the schools to give the older girls some instruction in housecraft and infant care are helping towards a solution of this problem, and in course of time will do much more to help. Among other remedial agencies are the maternity and child welfare centres, the day nurseries, and similar organisations. The available statistics show that only about 13 per cent. of the children between the ages of three and five in England and Wales are attending infant departments of public elementary schools or separate nursery schools. It is certain that the majority of the children included in the remaining 87 per cent. do not attend infant welfare centres after babyhood, even when this service has been extended to children above that

age. It is thus evident that neither the maternity and infant welfare centres, the day nurseries, nor the nursery schools and the classes for children under five in public elementary schools are at present dealing with more than a small percentage of the total number of children below that age. (Chapter V, §§ 72 and 81.)

69. We deliberately refrain from offering any suggestions for closing the gap in medical inspection and treatment during the years which intervene between attendance at the infant welfare centre and admission to school, since this problem is outside the scope of our Reference. *Nevertheless, we desire to take this opportunity of recording our opinion that sufficient supervision of the health of children below the age of five is a pressing need, and we think that the possibility of extending existing services should be explored with a view to providing more adequate facilities for the medical inspection and treatment of such children.* (Chapter V, §§ 72 and 81.)

Provision in schools for children below the age of five

70. In general, we think that, where the home conditions are good, the best place for a child below the age of five is at home, particularly if the mother takes advantage of the facilities for regular medical supervision of such children which are available or may be made available in the future. *We fully recognise, however, that the home surroundings of large numbers of children are not satisfactory, and we think that children below the age of five from such homes might with great benefit to themselves, their parents, and to the State, attend either separate nursery schools, or nursery classes within public elementary schools.* Any provision made by the State should be designed to supplement the home and to strengthen the ties between parents and their children. (Chapter V, §§ 80 and 81.)

71. *We think that children under the age of five in rural areas can only profit from attendance at school if there is a sufficient number of them to form a group, i.e. to justify the setting apart of a room and a teacher for their special training.* (Chapter V, § 79.)

Nursery Schools

72. *We are of opinion that the nursery school is a desirable adjunct to the national system of education ; and that in districts where the housing and general economic conditions are seriously below the average, a nursery School should, if possible, be*

provided. The nursery school should be designed primarily for those children who by reason of unsuitable environment require careful attention to their physical welfare and need to spend longer hours at school and to be provided with meals. (Chapter V, § 81.)

73. At the present stage of development of infant education, the nursery school has a value of its own as an educational instrument. It seems highly desirable that it should be developed separately, and be left free to perfect its methods, and to fulfil its special purpose. (Chapter V, § 77.)

74. We consider that even in districts where the social and economic conditions are more favourable, the establishment of a nursery school may be expected to have a beneficial influence upon other schools and to provide also a centre in which problems connected with the general development and nurture of children may be investigated. *We think, therefore, that apart from purely social and economic considerations model nursery schools for children from the age of two onwards are educationally desirable, and that they should be made accessible to teachers from other schools.* (Chapter V, § 81.)

Size of Nursery Schools

75. *While on purely educational grounds we are disposed to regard a nursery school for 60 to 80 children as of ideal size, we would recommend on economic grounds that, wherever necessary, nursery schools should be planned to accommodate 160 to 180, provided that the children are grouped in units not exceeding 35 to 40.* (Chapter V, § 76.)

Nursery Classes within Infant Schools

76. There are areas in which nursery classes within infant schools or departments will satisfy the existing need. *Where children below the age of five are admitted to infant schools or departments, nursery classes should eventually be the normal type of provision.* (Chapter V, §§ 78 and 81.)

General Recommendation

77. *We accordingly recommend that each local education authority should survey the needs of their area, with regard to home conditions and the wishes of the parents; and, after consultation with the Board of Education, should take such steps as may seem to them desirable to provide nurture and training in schools for children below the age of five.* (Chapter V, § 81.)

VII.—Staffing and Training of Teachers

The relation of the size of classes to staffing

78. *We recommend that the general lines of the staffing of infant schools should be determined by the consideration that none of the classes should contain more than 40 children.* (Chapter VII, § 107.)

The Staffing of Infant Schools and of Nursery Classes

79. *We recommend that the persons in charge of classes of young children below the age of seven should, where practicable, be certificated teachers.*

We realise that under existing conditions the practice of appointing certificated teachers to all assistant posts in infant “divisions” and in separate infant schools or departments cannot be universally adopted. While we hesitate to lay down any particular ratio for the purpose of guiding authorities as to the minimum of certificated teachers which should be employed on each staff, lest such a minimum might come to be regarded as a maximum, we would impress upon authorities the desirability of ensuring that in all schools in which the assistant staff numbers two or more, the head teacher should not be, as is sometimes at present the case, the only certificated teacher. (Chapter VII, § 107.)

80. In small schools staffed by two teachers, in which the head mistress generally teaches the older children, we think that, when the teacher in charge of the infant class is not certificated, great care should be taken to select a woman who possesses definite educational qualifications; she should also be temperamentally suitable and have a real sympathy for young children. We specially commend the practice adopted by many local education authorities of supplementing the guidance which such a teacher will receive from the head of the school by arranging for:—(a) visits of observation; (b) occasional exchanges with teachers in larger schools; (c) week-end classes and intensive courses; (d) advice from a visiting expert teacher. (Chapter VII, § 107.)

81. We consider that in areas containing a number of very small schools, in which the infant class may not always be in the charge of a certificated teacher, the services of an advisory visiting teacher are not less necessary than for some other branches of specialised teaching. We trust, however, that if this is done, special care will be exercised to prevent the stereotyping of educational method. (Chapter VII, § 107.)

82. *In small schools in which the number of pupils on the roll approaches 100, and in which the head teacher may be a man, there will ordinarily be two assistants, one of whom in our opinion should be a certificated woman possessing special qualifications for the teaching and training of the younger children.* (Chapter VII, § 107.)

The Staffing of Nursery Classes

83. *We consider that, since the teacher in charge of a nursery class for children below the age of five has special responsibilities in attending to both the physical and mental development of her pupils, she will require one or more "helpers" (see recommendation 85 below) if adequate use is to be made of the nursery amenities that we have recommended for such classes.* (Chapter VII, § 107.)

The Staffing of the Nursery School

84. *The staffing of nursery schools will not differ in principle from the staffing recommended for nursery classes, but the following considerations should be borne in mind :—*

(a) *When children as young as two are admitted, it is desirable that the teacher in charge should have had special instruction in nursery care during her training course.*

(b) *A higher ratio of "helpers" should be allowed :—*

(i) *where the day is longer, including meal times ;
and*

(ii) *where children are admitted at the age of two.⁽¹⁾*
(Chapter VII, § 108.)

"Helpers" for Nursery Schools and Nursery Classes

85. *"Helpers" are necessary in nursery schools and nursery classes, and we recommend their employment under the following conditions. They should be girls who have attended school up to the age of at least fifteen years, and their employment as "helpers" should cease at the age of eighteen or nineteen. In assessing qualifications for such work, the appointing body should have particular regard to the girl's aptitude for dealing with young children, to any evidence of vocational impulse, and also to the bearing which work in nursery schools and classes may have upon her future occupation. Though we*

⁽¹⁾ Part-time assistance will be required for the preparation of meals, etc. "Caretaking" in nursery schools is of special importance (see recommendation 103 below).

think that a " helper " who shows special aptitude for dealing with young children, might be allowed the opportunity of continuing her general education, with a view to qualifying as a teacher, we consider it important that employment as a " helper " should not be regarded as offering a guarantee of ultimate employment as a teacher. In the course of her work she will have acquired the experience of infant care which may qualify her later for employment as a children's nurse, welfare worker, or as a hospital nurse probationer. The training should also be valuable for girls remaining at home, or who later may have the care of a home. (Chapter VII, § 110.)

*Courses of Training for teachers of children
under the age of seven*

86. The general scheme for training intending infant teachers varies in different training colleges. In a few the infant teacher is trained to teach children between the ages of two or three and seven or eight ; in others, she is trained to teach children between the ages of five and eleven, with some emphasis on the special requirements of those between the ages of five and seven or eight. It does not follow, however, that the more specialised training will necessarily tie the teacher to service in a particular type of school.

It is important that teachers in infant schools should have had some knowledge of the various stages in a little child's development. The difficulties of the child of six or seven should be seen in relation to those of the child from the earliest age. Teachers will be better able to handle with understanding the problems that arise if they study them in their sequence. (Chapter VII, § 109.)

Qualifications for the teacher of young children

87. A teacher of young children should not only have a real love and respect for children, but should be a person of imagination, understanding, sympathy and balance. The possession of a pleasant voice is of the first importance. Child study should form the basis of her training and her studies in psychology should be connected directly with descriptions and observations of the actual behaviour of children. She should study the stages of development in children up to the age of seven with due regard to every aspect of growth. She should learn to note progress, to observe any signs of defect, and to keep records. She should gain some insight into the emotional problems of little children and learn how to handle their crises. (Chapter VII, § 109.)

Probationary period of service for Certificated Teachers

88. *We think that in both urban and county areas great care should be exercised in allocating young teachers who have specialised in infant work to schools for a probationary year, so that their first years in the profession may be passed in circumstances calculated to ensure that the best use is made of their college training.* (Chapter VII, § 109.)

Intensive Courses and Week-end Classes for Infant Teachers

89. We call attention to the excellent results that have been obtained from the intensive courses and week-end classes organised by the Board of Education and local education authorities. (Chapter VII, § 109.)

The Training and Qualifications of Superintendents of Nursery Schools

90. In view of the fact that she will have younger children in her care and will have them for a longer time, including the midday meal, *we consider it advisable that the superintendent of a nursery school should have been trained at a three-year college, or should have taken a "third" year in order to specialise in the charge of very young children, or should have had considerable experience in their care and teaching.* (Chapter VII, § 109.)

VIII.—Premises and Equipment*Existing school premises for children below the age of seven*

91. Though great improvements have been effected in school planning, *the design of the ordinary infant school is not yet in complete harmony with modern opinion regarding its function and activities.* (Chapter VIII, § 112.)

The need for adequate space in infant schools

92. *We consider that a more generous allowance of floor space is necessary for infants than for children in primary schools between the ages of seven and eleven.* (Chapter VIII, § 113.)

The utilisation of the surplus internal space in infant schools

93. In many infant school buildings there is an increasing amount of surplus accommodation owing to the declining birth rate, to the reorganisation of schools, and in many parts of the country to the movement of population. Two lines of policy for using this surplus accommodation, which in some cases may be alternative, accordingly present themselves to local education authorities: (a) The provision of more adequate

accommodation for children between the ages of five and seven ;
(b) the utilisation of vacant floor space for nursery classes.
(Chapter VIII, § 113.)

Design and Construction of Infant Schools

94. *The essential conditions of fresh air, sunshine and light, will best be secured by what may be described as semi-open-air buildings.*⁽¹⁾ On the whole, it seems that despite the somewhat higher annual maintenance charges, the less solid types of structure, in addition to being more economical in initial cost, may be found more adaptable to future changes in the methods of training and teaching young children. (Chapter VIII, § 116.)

Nursery School Premises

95. The nursery school building should not be "institutional" in character, but as far as possible of a light and open "garden pavilion" type.

We regard the provision of open shelters with a liberal space for a garden-playground, as an essential feature in the design of all newly provided nursery schools. (Chapter VIII, § 118 and Chapter V, § 75.)

Garden playgrounds for Infants

96. *In all new infant schools and departments a separate playing space or garden playground should be provided. Where, as in old buildings or on existing sites, this is impossible, the playground should be reserved at stated times for the younger children.* If there is insufficient space for a garden, the margins of the playground may be laid out in beds for flowers, plants and shrubs. Where practicable, part of the playing space for infants should be a grass plot. (Chapter VIII, § 114.)

Offices and Lavatories

97. *In new buildings the sanitary arrangements as well as the lavatories should be placed within the school, for the sole use of the infants. The school lavatories should be provided with an adequate supply of hot water, and "safety" taps should be fitted in the system.* (Chapter VIII, §§ 114 and 116).

Special consideration in internal planning for the needs of young children

98. The planning of the offices, lavatories, cloakrooms, store cupboards, and shelves in infant schools, and the height of

⁽¹⁾ These conditions are even more desirable where schools contain a nursery class.

dados and door handles should be governed by the needs of the smaller children. *Special regard should be paid to this consideration in re-modelling old school buildings originally designed for older children.* (Chapter VIII, § 114.)

Storage accommodation and cupboards

99. *The amount of educational apparatus now required for the training of young children necessitates a more generous provision of storage space than was usual in the older type of infant school, and also a different kind of cupboard for the children's use.* (Chapter VIII, § 114.)

Kitchens

100. *It is desirable to provide a small kitchen in school buildings designed for young children.* (Chapter VIII, §§ 114 and 116.)

Arrangements for drying clothes and foot-wear

101. *Suitable drying rails should be placed in the lavatory attached to the cloakroom, or preferably in a separate drying closet. Storage for overalls, brushes and other personal belongings may be provided in the cloakroom, the slippers being kept in racks below the cloak rails. A space of eighteen inches between each cloak hook should be insisted upon, at least in new buildings.* (Chapter VIII, § 114.)

Internal Decoration

102. *The practical knowledge and experience of the architects as to the wearing qualities of colours and their surface finish should be brought into account as well as the artistic and educational value of any proposed colour scheme for the rooms. We accordingly suggest that the local education authority might be well advised to form a reference committee consisting of teachers (including art teachers) and representatives of the architect's department.* (Chapter VIII, § 114.)

School Maintenance

103. *In infant and nursery schools the thorough and frequent cleansing of the cloakrooms and offices, and of the floors, walls and furniture in the classrooms has a particular importance.* (Chapter VIII, § 120.)

Internal Equipment for Infant and Nursery Schools

104. *We regard it as most desirable that the classrooms in infant schools should be furnished with light tables and chairs. In addition to small tables and chairs, folding stretcher-beds of*

light metal or wood are indispensable in nursery schools and classes. An adequate supply of teaching equipment, a piano, and possibly a gramophone and some instruments of percussion should be provided in infant schools and in nursery schools and classes.⁽¹⁾ (Chapter VIII, §§ 119 and 122.)

Books for Infant Schools

105. *It is most important that infant schools should be adequately supplied with suitable books, including picture books, story books, and the "work" type of reading book. The supply of class books for reading is generally adequate, but there is a greater need for books to meet the requirements of those infant schools where individual methods have been adopted.* (Chaper VIII, § 121).

(Signed) W. H. HADOW (*Chairman*)

J. W. BISPHAM

M. DOROTHY BROCK

W. A. BROCKINGTON

E. R. CONWAY

H. W. COUSINS

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MARIE CAROLA GALWAY

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F. B. MALIM

ALBERT MANSBRIDGE

H. J. R. MURRAY

E. G. ROWLINSON

SHENA D. SIMON

J. A. WHITE

R. F. YOUNG (*Secretary*).

27th July, 1933.

⁽¹⁾ The teaching equipment in nursery schools and classes will usually consist of picture books, apparatus for sense training, plastic material for handwork, dolls and dolls' houses, railways, rocking horses (not too large) and other toys, bricks of various types, beads and *abaci*. In the playground and garden there should be balancing boards, swings, small wheelbarrows, and small garden tools.

* See Note on the following page.

NOTE BY MISS FREDA HAWTREY

In conclusions 72, 73, 74, we recognise the value of nursery schools, and I am glad to associate myself with this recognition. The nursery school is recommended as a means for promoting the physical welfare of children whose environment is unsuitable : it is said to be " educationally desirable " : it is expected to have " a beneficial influence upon other schools " ; it may provide a centre for the investigation of problems connected with the general development and nurture of children. It is assumed, however, that the nursery school will in every case continue to limit its admission to children aged two to five. I go a little beyond my colleagues in believing that a nursery school would have more value as an experiment or as a " model " if it were able to keep its children till seven, the age when they pass into the upper department of a primary school. At present the work of the nursery school is unduly curtailed by the break at five. A little child needs food, sleep, exercise, fresh air, and cleanliness, and this " nurture " essential for his development should not be even partially withdrawn at the early age of five. Nor should he be interrupted in his practice of good habits. Nothing is secure at five, though without a break much might be established by seven. A sudden change of environment will be equally damaging to his intellectual development and growing interests. There should be continuity till seven ; when this continuity is preserved the extent to which children benefit from education in a nursery school will become apparent.

In planning the training and education of children up to seven, the relation between school and home is a governing consideration. Home conditions differ greatly, and the various ways in which these may be supplemented through the schools can only be determined by free experiment. We have the infant school for children from five to seven, the infant school with nursery class for those from three to seven, the nursery school for those from two to five, and we need also the nursery school for children from two to seven. Such a nursery school could be developed separately. It would then in truth be free " to perfect its methods and to fulfil its special purpose." (Conclusion 73.)

The Education Act, 1921, empowers local education authorities to supply or aid nursery schools for children over two and under five years of age or *such later age as may be approved by the Board of Education.*

This has in practice been interpreted to mean that leave may be given to nursery schools to retain individual children who need very special consideration. I venture to suggest that the Board of Education should extend their use of this discretionary power, and that they should be prepared to approve nursery schools for children over two and up to seven years of age. I, therefore, accept recommendation 74, with the following alteration :—

“ We think, therefore, that apart from social and economic considerations, model nursery schools for children *either from the age of two to five or from the age of two to seven* are educationally desirable and that they should be made accessible to teachers from other schools.”

F. HAWTREY.

APPENDIX I

(A) LIST OF WITNESSES

(i) Government Departments

Board of Education

Miss W. Biggs, H.M. Inspector of Schools.
 Miss H. Brown-Smith, late H.M. Inspector of Schools.
 Mr. H. J. Dean, H.M. Divisional Inspector of Schools.
 Miss M. C. Glasgow, Assistant Inspector.
 Miss M. C. L. Greaves, H.M. Inspector of Schools.
 Miss M. Hill, late H.M. Inspector of Schools.
 Mr. G. E. Kendall, O.B.E., F.R.I.B.A., Architect to the Board of Education.
 Miss A. G. Philip, C.B.E., H.M. Chief Woman Inspector of Schools.
 Sir Henry Richards, C.B., LL.D., late H.M. Senior Chief Inspector of Schools.
 Mr. A. L. Thornton, H.M. Divisional Inspector of Schools.
 Miss L. E. Wilson, M.D., Medical Officer.

Welsh Department—

Miss M. Davies, H.M. Inspector of Schools.
 Mr. T. H. Lewis, H.M. Inspector of Schools.
 Mr. Caleb Rees, H.M. Inspector of Schools.

Scottish Education Department—

Mr. J. Jardine, O.B.E., M.D., Assistant Secretary.
 Mr. T. B. M. Lamb, H.M. Inspector of Schools.

Ministry of Health

Dame Janet Campbell, D.B.E., M.D., Senior Medical Officer in the Ministry of Health, and Chief Woman Medical Adviser to the Board of Education.
 Sir George Newman, K.C.B., M.D., Chief Medical Officer of the Ministry of Health and the Board of Education.

(ii) Associations representing Members and Officials of Local Education Authorities

Association of Directors and Secretaries for Education :—

Mr. A. L. Binns, Director of Education for Ealing.
 Mr. A. W. Hoyle, Director of Education for Bath.
 Mr. P. E. Meadon, C.B.E., Director of Education for Lancashire.

Association of Education Committees :—

Mr. J. Ewart Smart, Ph.D., Director of Education for Acton.
 Miss E. M. Sutton, Chairman of the School Management Committee of the Reading Education Committee.
 Mrs. E. Wainwright, Chairman of the Mansfield Education Committee.

Association of Municipal Corporations :—

Mr. R. H. Hume, Chairman of the Birmingham Education Committee.
 Mr. Wright Robinson, Chairman of the Manchester Education Committee.
 Mr. A. H. Whipple, Director of Education for Nottingham.

County Councils Association :—

Major A. Leycester-Penrhyn, Chairman of the Surrey County Council.
 Mr. W. H. Perkins, Director of Education for Warwickshire.
 Mr. F. F. Potter, Director of Education for Cheshire.

Federation of Education Committees (Wales and Monmouthshire) :—

Mr. D. T. Jones, Director of Education for Pembrokeshire.

National Association of Inspectors of Schools and Educational Organisers :—

Mr. P. B. Ballard, D.Litt., late Divisional Inspector under the London County Council.

Miss G. Sanson, Inspector of Infants' Methods under the London County Council.

Miss E. Stevenson, Senior Woman Inspector under the London County Council.

(iii) Organisations representing Teachers**National Association of Head Teachers :—**

Miss K. Chappell, Harrison James C. Infant School, Liverpool.

Miss A. J. Dawes, Fentham Road C. Infant School, Birmingham.

Miss L. Lowe, Alfreton Road Junior Mixed and Girls' School, Nottingham.

Mr. T. G. Tibbey, Mile End Central School, London, E.1.

National Federation of Class Teachers :—

Mrs. A. L. Darby.

Miss W. Organ.

National Union of Teachers :—

Miss J. A. Callard, Parcyrhun C. School, Carmarthenshire.

Miss I. Haswell, Chillingham Road C. School, Newcastle-on-Tyne.

Miss W. Organ, Prospect Terrace C. School, London, W.C.1.

Mrs. E. V. Parker, Odessa Road C. School, London, E.7.

Mr. G. S. M. Ellis, Secretary to the Education Committees.

National Union of Women Teachers :—

Miss G. I. Cottell.

Miss H. D. Dedman.

Miss A. Goldberg.

Miss E. E. Froud, General Secretary of the Union.

Training College Association and Council of Principals of Training Colleges :—

Miss S. E. Fisher, Edge Hill Training College, Liverpool.

Miss H. J. Hartle, Brighton Municipal Training College.

Miss M. E. Paine, Leeds City Training College.

Miss S. Walker, Darlington Training College.

(iv) Other Organisations**Froebel Society and Junior Schools Association :—**

Miss M. L. Haskell, Lecturer, Clapham (High) Training College.

Miss E. E. Kenwick, Lecturer, Maria Grey Training College.

Miss M. G. Ostle, Secretary to the Society.

Industrial Women's Organisation, Standing Joint Committee of :—

Mrs. E. Barton, J.P.

Mrs. B. A. Gould, J.P.

Miss M. E. Sutherland, Secretary.

Medical Officers of Health Society (School Medical Group) :—

Mr. T. P. Puddicombe, D.S.O., M.B., M.R.C.S., Deputy County Medical Officer of Health for Essex.

Medical Officers of Schools Association :—

Mr. A. A. Mumford, M.D., Consulting Physician to Greengate Hospital and Nursery School, Salford.

Mr. E. T. Nash, M.R.C.S., Medical Officer of Health and School Medical Officer for Heston Hounslow.

Montessori International Society (English Branch) :—

Dottoressa Maria Montessori, M.D., D.Litt.

Miss C. M. Baylie, Secretary, Montessori Training College, Hampstead, N.W.3.

Mr. C. A. Claremont, Resident Director, Montessori Training College, Hampstead, N.W.3.

New Educational Fellowship :—

Mr. A. J. Lynch, Secretary to the Fellowship.

Mr. W. T. R. Rawson, Assistant Director.

Nursery School Association :—

Mrs. H. J. E. Eveleigh, President of the Association.

Miss M. Lord, Lilycroft Nursery School, Bradford.

Miss G. Owen, O.B.E., General Secretary of the Association.

Miss A. M. Wallis, Columbia Market Nursery School, London, E.2.

Trades Union Congress General Council :—

Mrs. E. M. Lowe, J.P.

Mr. A. Pugh, Chairman of the Education Committee.

Mr. J. V. G. Ray, Secretary to the Education Committee.

(v) Individual Witnesses

Mr. F. P. Armitage, C.B.E., Director of Education for Leicester (C.B.).

Miss R. M. Atkinson, Deputy Chief Inspector of Schools for Manchester.

Mr. Thomas Boyce, Director of Education for Bradford.

Professor Cyril Burt, D.Sc., Professor of Psychology, University College, London.

Prof. Arnold Gesell, Ph.D., M.D., Professor of Child Hygiene and Director of the Clinic of Child Development, Yale University, U.S.A.

Professor H. A. Harris, D.Sc., M.D., Professor of Clinical Anatomy, University College and University College Hospital, London, W.C.1.

Mr. P. D. Innes, D.Sc., Chief Education Officer for Birmingham.

Mrs. Susan Isaacs, D.Sc., Head of the Department of Child Development, The Institute of Education, University of London and Research Assistant in the Psychological Laboratory, University College, London.

Miss L. de Lissa, Principal of Gipsy Hill Training College, London, S.E.19.

Mr. S. H. Plumbly, Head Teacher, Warnham C.E. School, Sussex.

Miss F. E. Roe, Head Teacher, Marlborough C. Infant School, Chelsea, London, S.W.3.

Miss A. L. Rogers, Bryn Mawr College, Pennsylvania, U.S.A.

Miss E. Stevinson, Principal, Rachel McMillan Training College, Deptford, London, S.E.8.

Mr. J. Stewart, County Master of Works for Lanarkshire.

Miss F. W. Webb, Head Teacher, Haverstock Hill C. Infant School, London, N.W.3.

(B) LIST OF ORGANISATIONS AND PERSONS WHO SENT
MEMORANDA, STATISTICS AND OTHER DATA FOR
THE USE OF THE COMMITTEE

- Acton, Miss H., Head teacher, Walsall Road C. Infant School, Willenhall, Staffs.
- Addie, Miss J., Head teacher, Marlborough Road C. Infant School, Cardiff.
- Addis, Miss B., Head teacher, Lowden C.E. School, Wilts.
- Alderson, Miss O. A., Head teacher, Lawrence Road C. School, Liverpool.
- Allen, Miss W., Head teacher, Wingham C.E. Girls' and Infant School, Kent.
- Arnold, Miss J. M., Head teacher, Cale Green C. Infant School, Stockport.
- Ashby, Miss M. K., Lecturer at Goldsmiths' College, New Cross, London.
- Ashcroft, Miss F., Head teacher, Cromwell Road Infant School, Pendlebury, Manchester.
- Ashton, Miss G., Head teacher, Queen Street C. Infant School, Farnworth, Lancs.
- Ashworth, Miss A. C., Head teacher, Pikes Lane C. School, Bolton.
- Association of Assistant Mistresses in Secondary Schools.
- Association of Head Mistresses.
- Asquith, Miss R., Head teacher, Holycroft C. Infant School, Keighley.
- Bailey, Miss D. M. M., Head teacher, Castle Infant School, Bristol.
- Bailey, Miss M. M., Head teacher, Christ Church School, Mountsorrel, Leics.
- Baines, Mrs. S. M., Head teacher, Hanham Road C. Infant School, Kingswood, Bristol.
- Balchin, Miss C. A., late Head teacher, Hook Road C. Infant School, Epsom.
- Banton, Miss E. M., Head teacher, Croft Street Infant School, Walsall.
- Barker, Sir Ross, K.C.I.E., late Chairman of the Indian Public Service Commission.
- Bastable, Miss R. K., H.M. Inspector of Schools.
- Bate, Miss L. M., Head teacher, Hannah More Infant School, St. Philips, Bristol.
- Baxter, Miss M., Head teacher, Cambridge Street C. School, Barrow-in-Furness.
- Beale, Miss M. A., Head teacher, Exmouth C. Infant School, Devon.
- Beattie, Miss I., Head teacher, St. Michael's C. Infant School, Workington.
- Bees, Mr. W. J., Director of Education for Leeds.
- Bell, Miss H., Head teacher, Cromwell Road Infant School, South Bank, Yorks.
- Bellis, Miss H., Head teacher, Moreton C.E. School, Wallasey.
- Bennett, Miss H. S., Head teacher, Somerset Place Infant School, Plymouth.
- Beresford, Miss L. A. H., Head teacher, Sunning Hill C. School, Bolton.
- Best, Miss M. I., Head teacher, North Heaton C. Infant and Junior School, Newcastle-on-Tyne.
- Betts, Mr. F., "Springfield," Mottram Road, Hyde, Cheshire.
- Beynon, Miss M. R., Lakefield C. Infant School, Llanelly.
- Biggs, Miss E., 33, Albert Road, Ashford, Kent.

- Birchenough, Mr. C., Chief Inspector under the Kent Education Committee.
- Birkin, Miss D., Head teacher, Woodnook C. Infant School, Accrington. Birmingham Education Committee.
- Blatchford Miss C., Head teacher, Clydach C. Infant School, Swansea.
- Blenkinsop, Miss M. O., Head teacher, Hillary Street C. Infant School, Walsall.
- Blything, Miss S., Head teacher, St. Mary's C.E. Infant School, Newton-le-Willows, Lancs.
- Board of Deputies of British Jews.
- Bolton, Miss M. H., Head teacher, Lavender Hill C. Infant School, Battersea, S.W.11.
- Boome, Mr. E. J., M.B., Ch.B., Divisional Medical Officer, Public Health Dept., London County Council.
- Bourne, Miss S., North Wales Training College, Bangor.
- Bowen, Miss E., Head teacher, Southend C. Infant School, Middlesbrough.
- Bradford Education Committee.
- Bradley, Miss I. F., Head teacher, St. James Infant School, Northampton.
- Brenchley, Miss B. A., Head teacher, Mundella C. Infant School, Folkestone.
- Brennand, Miss M. M., Head teacher, Langcliffe C. School, Yorks.
- Briggs, Miss, Head teacher, Wye C. Infant School, Kent.
- Brindle, Miss A., Head teacher, Chalfont Street C. Infant School, Bolton.
- British Psychological Society (Education Section).
- Broadbent, Mr. F., F.R.I.B.A., Architect to the Leeds Education Committee.
- Brook, Miss F. A., Head teacher, St. Martin's C.E. School, Hereford.
- Brookes, Miss A. E., Head teacher, Leek C. Infant School, Staffs.
- Brown, Miss A., Head teacher, Redby C. Infant School, Sunderland.
- Brown, Miss W., Head teacher, St. Ann's R.C. Infant and Nursery School, Bradford.
- Buckland, Mr. H., F.R.I.B.A., Architect to the Birmingham Education Committee.
- Bulland, Miss A., Head teacher, All Saints C.E. Infant School, Hereford.
- Bullen, Miss V. R., Superintendent, Thomas Wall Nursery School, Sutton, Surrey.
- Bunker, Mrs. H., Kirtlington C.E. School, Oxford.
- Burchett, Mr. H. W., F.R.I.B.A., Architect to the Middlesex Education Committee.
- Burgess, Mrs. A. M., late Head teacher, Parish C.E. School, Cheltenham.
- Burgess, Miss F., Head teacher, Wolfenden C. Infant School, Bolton.
- Burns, Miss C. E., Head teacher, Grangetown C. Infant School, Yorks.
- Burridge, Miss, Head teacher, Rack Street Infant School, Exeter.
- Cameron, Dr. H. C., M.D., B.Ch., 23, Devonshire Place, W.1.
- Camp, Miss E. P., Head teacher, Herbert Thompson C. Infant School, Cardiff.
- Cape, Mr. F. W., H.M. Divisional Inspector of Schools.
- Carroll, Mr. W., Mus. Doc., Musical Adviser to the Manchester Education Committee.
- Castillejo, Señor J., Madrid.

- Chamberlain, Miss A., Head teacher, Rothschild C. Infant School, Acton, W.4.
- Chamberlain, Miss G., Head teacher, Dingle Lane C. Infant School, Poplar, E.14.
- Chambers, Mr. F. W., O.B.E., H.M. Inspector of Schools.
- Child, Miss M., Head teacher, Victoria C. Infant School, Barrow-in-Furness.
- Clark, Miss G., Head teacher, Cliff Street C. Infant School, Whitby.
- Clarke, Miss A. G., Head teacher, All Saints Vol. Infant School, Newmarket.
- Clarke, Miss M. G., Head mistress, Manchester High School for Girls.
- Clay, Sir Felix, Bart., F.R.I.B.A., late Architect to the Board of Education.
- Cleary, Miss A., Head teacher, St. Patrick's R.C. Infant School, Wapping, E.1.
- Clough, Miss B., Head teacher, Wesleyan Infant School, Leigh, Lancs.
- Coirault, Mde. A., Inspectrice Générale de L'Instruction Publique, Paris.
- Coles, Mr. P. B., H.M. Inspector of Schools.
- Colley, Miss I., Head teacher, Ladybarn C. Infant School, Withington, Manchester.
- Collins, Miss D. I., Head teacher, Ledbury C. Girls' and Infant School, Herefordshire.
- Combs, Miss E., Head teacher, Sussex Street C. Infant School, Brighton.
- Cooke, Miss A. A., Head teacher, William Crane C. Infant School, Nottingham.
- Cooke, Miss E., Head teacher, Slater Street C. Infant School, Darlaston, Staffs.
- Cooper, Miss E. H., Head teacher, Rushall C. Infant School, Staffs.
- Co-operative Union Ltd., Central Education Committee of.
- Corte, Frau Dr. E., Deutsches Archiv für Jugendwohlfahrt, Berlin.
- Cotton, Miss B., Head teacher, Fairfield Road C. Infant School, Market Harborough, Leics.
- Cousins, Miss M. W. R., Head Teacher, St. Mary Magdalene School, Barnstaple.
- Cox, Miss D. M., H.M. Inspector of Schools.
- Cox, Miss F. E., Head teacher, Stone Road C. School, Stafford.
- Crackle, Miss G., Head teacher, Campbell Square C. Junior and Infant School, Northampton.
- Crane, Miss E. A., Head teacher, London Road C. Infant School, Southend-on-Sea.
- Croasdale, Miss M., Head teacher, Church Road C. Infant School, Bolton.
- Crompton, Miss A., Head teacher, S.S. Simon & Jude's Infant School, Bolton.
- Crowley, Mr. R. H., M.D., Senior Medical Officer of the Board of Education.
- Dalglish, Miss M. S., Head teacher, Egerton Grove Infant School, Wallasey.
- Dallimore, Miss E., Head teacher, Skelmersdale C. Infant School, Lancs.
- Dancaster, Miss E., Head teacher, Houghton-le-Spring C. Infant School, Co. Durham.
- Darbyshire, Miss G., Head teacher, Sacred Heart Infant School, Leigh, Lancs.

- Davies, Mr. D. T., H.M. Inspector of Schools.
 Davies, Miss J. H., Head teacher, Pellon Lane C. Junior and Infant School, Halifax.
 Davies, Miss M. E. M., Head teacher, North Road C. Infant School, Milford Haven.
 Davies, Miss S. E., late H.M. Inspector of Schools.
 Davis, Miss C., Head teacher, Ocker Hill C. School, Tipton, Staffs.
 Davis, Miss R. A., Head teacher, Taylor Street Infant School, Leicester.
 Day, Miss A. M. Head teacher, Malvern Link C. Infant School, Worcs.
 Dearlove, Miss A., Head teacher, Castle Street C. Infant School, Stroud, Glos.
 Diels, Dr. P. A., Editor of *Paedagogische Studien*, Amsterdam.
 Dixon, Miss G., Kirby Stephen C. Mixed School, Westmorland.
 Dodd, Miss E. A., Head teacher, West Thornton C. Infant School, Croydon.
 Dorran, Miss F., Head teacher, Dunbar Street R.C. School, Oldham.
 Drummond, Miss M., 10, Hartington Garden, Edinburgh.
 Dunn, Miss S. J., Head teacher, Central C. Infant School, Gosforth, Newcastle-upon-Tyne.
 Dutton, Miss F., Head teacher, Walverden C. Infant School, Nelson, Lancs.
 Eary, Miss M. E., Head teacher, Beeches Road Infant School, West Bromwich.
 Eaton, Miss A. M., Head teacher, Sussex Road Council Infant School, Tonbridge, Kent.
 Eden, Miss M., Head teacher, Hightown C. Infant School, Crewe.
 Edwards, Miss D. E., Head teacher, St. John's Infant School, Brighton.
 Ellis, Miss J. A., Head Teacher, Glandwr C. Infant School, Llanidloes, Mont.
 Elmer, Miss S. A., Head teacher, Hazel Street Infant School, Leicester.
 Elphick, Miss E. M., Head teacher, Moberley C. Infant School, Paddington, W. 9.
 Emblem, Miss A. W., Head teacher, Beulah C. Infant School, Thornton Heath, Surrey.
 Emerson, Miss E. J., Head teacher, Denton C.E. School, Darlington.
 Ethelburga, Sister, Holy Cross Infant School, St. Helens, Lancs.
 Evans, Miss E. G., Head teacher, Moat Road Infant School, Leicester.
 Evans, Miss M., Head teacher, Griffithstown C. Infant School, Mon.
 Evans, Miss W., Head teacher, Albert Road Infant School, Penarth.
 Eyles, Miss R. A., Head teacher, Church Road Infant School, Lowestoft.
 Farrington, Miss A., Head teacher, Leigh Street C. Infant School, Hyde, Cheshire.
 Findlay, Prof. J. J., Ph.D.
 Firth, Mr. J. B., Lecturer on Phonetics, University College, London.
 Fisher, Miss E. M., Head teacher, Mount Street Infant School, Brecon.
 Flack, Miss H., Teachers' College, Columbia University, New York, U.S.A.
 Fluck, Miss E., Head teacher, Burnt Ash C. Junior and Infant School, Bromley, Kent.

- Forfitt, Miss A. M., Head teacher, Gainsborough Road C. Infant School, West Ham, E.15.
- Fort, Miss A., Head teacher, West Street C. Infant School, Colne, Lancs.
- Foster, Miss H. M., Head teacher, Ottershaw C.E. Infant School, Surrey.
- Fowler, Capt. E. G., F.R.I.B.A., Architect and Surveyor to Leicestershire Education Committee.
- Fowler, Miss F., Head teacher, Charlemont C. Infant School, West Bromwich.
- Francis W. Parker School, Chicago, U.S.A.
- Frankish, Miss H., Head teacher, Upper Marylebone Street Infant School, London, W.1.
- Funnell, Miss B., Head teacher, West Malling C.E. Infant School, Kent.
- Fyfe, Mr. G. M., M.B., Ph.D., Administrative Officer, James Mackenzie Institute for Clinical Research, St. Andrews, Scotland.
- Gardiner, Miss D. E. M., Lecturer in Infant Method, Bishop Otter Training College, Chichester.
- Gardner, Miss A. M., Head teacher, Oakfield C.E. Infant School, Ryde, I. of W.
- Garland, Mr. R., Head teacher, Heald Place C. Junior Mixed School, Manchester.
- Garner, Mrs. B., Head teacher, Warboys C.E. School, Hunts.
- Gater, Mr. G. H., C.M.G., D.S.O., Clerk to the London County Council.
- Geach, Miss F. I., Head teacher, Maindee C. Infant School, Newport, Mon.
- Gibson, Miss R., Head teacher, Denmark Street C. Infant School, Middlesbrough.
- Goodwin, Miss A., Head teacher, Akroyd Place C. Infant School, Halifax.
- Gray, Miss J. H. D., Head teacher, Amble C.E. Infant School, Northumberland.
- Greaves, Miss H. C., Head teacher, Stourton C. Infant School, Rothwell, Yorks.
- Green, Miss Q. B., Head teacher, Bull Close C. Infant School, Norwich.
- Griffiths, Miss B. M., Head teacher, Cymmer C. Infant School, Rhondda.
- Griffiths, Miss M., Head teacher, Stanley Town C. Infant School, Rhondda.
- Griffiths, Miss M., Head teacher, Gwendraeth C. Infant School, Llanelly.
- Gwynn, Miss E., Head teacher, Oxford Street C.E. Infant School, Swansea.
- Hackett, Mrs. M., Head teacher, St. Mary's C.E. Infant School, Kidderminster.
- Haldane, Miss E., C.H., LL.D.
- Hall, Miss C., Head teacher, Castle Hill Junior School, Bolton.
- Hall, Miss M. I., Head teacher, Brandon C. Infant School, Co. Durham.
- Hammond, Mrs. J. L., D.Litt.
- Hampson, Miss M., Head teacher, St. Peter's C.E. Infant School, Leigh, Lancs.

- Hancock, Miss M. E., Head teacher, Norton Canes C. Junior Mixed School, Staffs.
- Hansford, Mr. F. E.
- Hanton, Miss N. E., Head teacher, Tooting R.C. School, S.W.17.
- Harral, Miss E., Head teacher, Holy Trinity C.E. Infant School, Blackburn.
- Harrington, Miss M. A., Head teacher, High Street C. Infant School, Wealdstone, Middx.
- Harris, Miss E., Head teacher, Vernon Square C. Infant School, Finsbury, W.C.1.
- Harrison, Miss A., Head teacher, Harkstead C.E. School, Suffolk.
- Hartley, Mr. H., H.M. Staff Inspector of Schools.
- Hennessy, Miss J., Head teacher, Ivydale School, Nunhead, S.E.15.
- Herbinière-Lebert, Madame, Paris.
- Higgin, Miss M. B., Head teacher, Trafford Road C. Infant School, Salford.
- Hillyer, Miss E. M., Head teacher, Farmer Road C. Infant School, Leyton, E.10.
- Hinchcliffe, Mr. G. S., Head teacher, Wilbraham Junior Mixed School, Fallowfield, Manchester.
- Hodgkinson, Miss A. A., Head teacher, Central C. Infant School, Morecambe, Lancs.
- Hodgkinson, Miss A. M., Head teacher, Barnard Castle C.E. Infant School, Co. Durham.
- Holland, Miss L., Head teacher, Pemberton Colliery C.E. Infant School, Wigan.
- Holloway, Miss A., Head teacher, Braintcroft C. Infant School, Cricklewood, N.W.2.
- Holmes, Mr. E. G. A., late Chief Inspector of Elementary Schools.
- Hood-Williams, Miss M., Head teacher, Church Road Girls' School, Lowestoft.
- Hopper, Miss E. W., Head teacher, Horden C. Infant School, Co. Durham.
- Houghton, Miss W. E., Lecturer, Gipsy Hill Training College, London, S.E.19.
- Houseman, Miss M., Head teacher, Knavesmire C. Junior and Infant School, York.
- Howard, Mr. F. T., late H.M. Divisional Inspector of Schools, Department of Education, Exeter University College.
- Howard, Mrs. L. E., Head teacher, Union Street C. Infant School, Woolwich, S.E.18.
- Howard, Mr. R. R. R. C., Assistant Inspector of Schools.
- Howarth, Miss E., Head teacher, Elton C. Infant School, Bury.
- Howarth, Miss E. M., Head teacher, Eastward C. Infant School, Bury.
- Howells, Miss E. A., Head teacher, Whitland C. Infant School, Carm's.
- Hughes, Miss C., Head teacher, Penrhyndeudraeth Infant School, Merioneth.
- Hughes, Miss R., Head teacher, Hiracl C. Infant School, Caernarvonshire.
- Hunt, Miss E. V. C., Head teacher, Rhyl Street C. Infant School, Kentish Town, N.W.5.
- Hurr, Miss E., Head teacher, Greenacre C. Infant School, Great Yarmouth.
- Incorporated Association of Assistant Masters in Secondary Schools.

- Ingham, Miss M. A., Head teacher, Batley Carr C. Infant School, Dewsbury.
- Ingram, Miss E. N., Head teacher, Abingdon C.E. Infant School, Berks.
- Innes, Miss L., Head teacher, Shotton C. Infant School, Co. Durham.
- Jackson, Miss A., Head teacher, Bolden Colliery C. Infant School, Co. Durham.
- Jackson, Miss E. E., Head teacher, St. Luke's C.E. School, Birkenhead.
- Jalland, Miss M. E., Head teacher, Wilbraham C. Infant School, Manchester.
- James, Miss E. J., Head teacher, West Street C. Infant School, Crewe.
- James, Miss F. A., Head teacher, Linden Road C. Infant School, Gloucester.
- Jauncey, Mr. J., Head teacher, Claremont Road Junior School, Manchester.
- Jefferies, Miss A., Head teacher, Wolverhampton Road C. Infant School, Walsall.
- Jenkins, Miss M., Head teacher, Cilfynydd Infant School, Pontypridd.
- Jesse, Miss F. L., Head teacher, Cogan C. Infant School, Penarth.
- Jones, Miss F. K., Head teacher, Victoria C. Infant School, Wrexham.
- Jones, Miss E. L., Head teacher, Cybi Infant and Junior School, Holyhead.
- Jones, Miss M. B., Head teacher, Cannon Street C. Infant School, Hanley, Staffs.
- Jones, Miss M. E., Head teacher, Sprowston Infant School, Norfolk.
- Jones, Miss R., Head teacher, South Harringay C. Infant School, London, N.4.
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APPENDIX II

MEMORANDUM ON THE ANATOMICAL AND PHYSIOLOGICAL CHARACTERISTICS AND DEVELOPMENT OF CHILDREN BETWEEN THE AGES OF TWO AND SEVEN BY H. A. HARRIS, M.D., B.S., D.SC., M.R.C.P., PROFESSOR OF CLINICAL ANATOMY, UNIVERSITY COLLEGE AND UNIVERSITY COLLEGE HOSPITAL, LONDON.

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In my memorandum on the anatomical and physiological characteristics and development of children between the ages of seven and eleven, which was printed as Appendix II to the Consultative Committee's *Report on the Primary School* (1931), I attempted to give a brief outline of the salient features of growth in children during those years. In the present memorandum I have tried to trace briefly the physical development of the child up to the age of seven *plus*, with special reference to the period between the ages of two and seven. An effort has been made to avoid mere repetition of what appeared in the earlier publication, but it has been felt desirable to make the present memorandum self-contained so far as possible for the use of readers of this Report who may not have the time or opportunity to refer to the *Report on the Primary School*.

An outline of this size and character is necessarily restricted in its scope, but I have attempted to give a general survey of the somewhat complex process of growth in young children up to the age of seven,

together with a more detailed account of the development and functioning of some organs, e.g. the skin and the teeth, which were only discussed briefly in the earlier memorandum.

GROWTH

Growth in the true sense of the word implies more than mere change in size and form. It includes that gradual development from the ovum to old age which involves the acquisition of new functions and fresh responses to the environment by the unfolding of new patterns of behaviour. The mere morphogenetic aspect of growth studied by the older anatomists is inadequate and room must be found for concepts which are on the one hand frankly physical, chemical or biological, and on the other psychological. Our real interest in children is not determined by their anatomy, but by their changing activity and behaviour as they pass from one developmental stage to another. Still more stimulating than the change is the rate of change and the variation in the rate of change from child to child.

It is necessary to consider the manner in which a growing organism, whether animal or plant, reacts to the conditions of its surroundings. Growth is at its maximum in the earliest stages of development. The human *ovum* two weeks after conception doubles its weight in 6 days. The human embryo of the third month doubles its weight in the next month, the new-born child takes 6 months to double its weight, and one year to treble its birth weight. There is a considerable body of experimental proof, ranging from the experiments of Vernon ⁽²⁾ in animal life to those of De Vries ⁽³⁾ in vegetable life, that external conditions do not act equally powerfully at all periods in the growth of a developing organism, but that the effect of the environment is the more noticeable as growth is the more active. It would appear to be a law of general application that the permanent effect of environment on the growth of a developing organism diminishes rapidly and regularly from the time of impregnation onwards.

In addition to the increased susceptibility to environmental conditions in periods of rapid growth, there is the well-established fact that the variability of response is greater during the earlier periods of growth. Babies vary more amongst themselves than do children or adults. Embryos vary more than babies. This is the scientific basis for the belief of the special influence of the condition of the mother at the time of conception upon the subsequently developing offspring.

The extent to which a retardation or acceleration of growth produced at any particular period of development may persist throughout childhood is difficult to assess in many cases. Such an effect, produced in the earliest stages, may be entirely compensated by a subsequent variation of the rate of growth in the reverse direction. The fact that variability in height and weight decreases with growth indicates that there is a definite tendency for previous irregularities to be eliminated.

The health of the mother during pregnancy, and of the offspring during their early years is of paramount importance in its permanent effects on the physique, constitution and health of later years. Notwithstanding the checks and spurts of growth in childhood there is, as Lorrain Smith ⁽⁴⁾ states, a Law of Uniform Stature to which the organism tends to conform. Few are the adults who differ by more than 5 per cent. from the average stature of the race, or by more than 5 per cent. from the average for the circumference of the head.

THE GROWTH CURVE

The foetus in the month before birth grows more rapidly than at any other period. During this month the infant increases his weight by 1 per cent. each and every day. If he continued to grow at this rate after birth, he would weigh 200 lb. at the end of the first year and at the end of 20 years would be as big as the earth. During the first year of post-natal life the babe grows rapidly and this period may be called the *first springing-up period* (Fig. I). From one to five years he grows more slowly and more steadily. This is the *first filling-out period*. From five to seven years there is a *second springing-up period*. It is at this stage that the child increases rapidly in height, loses his milk dentition, and begins to cut his second or permanent teeth, becomes thin and long in the leg and exchanges the chubbiness of babyhood for the characteristic family countenance. At seven years of age his head is almost as large as it ever will be. Between seven and eleven or twelve, according to sex, occurs the *second filling-out period* with steady growth as its characteristic, to be followed by the *third springing-up period* associated with puberty. The startling changes associated with the rapid growth of puberty give place to the *third and last filling-out period*, as puberty is succeeded by the period of adolescence.

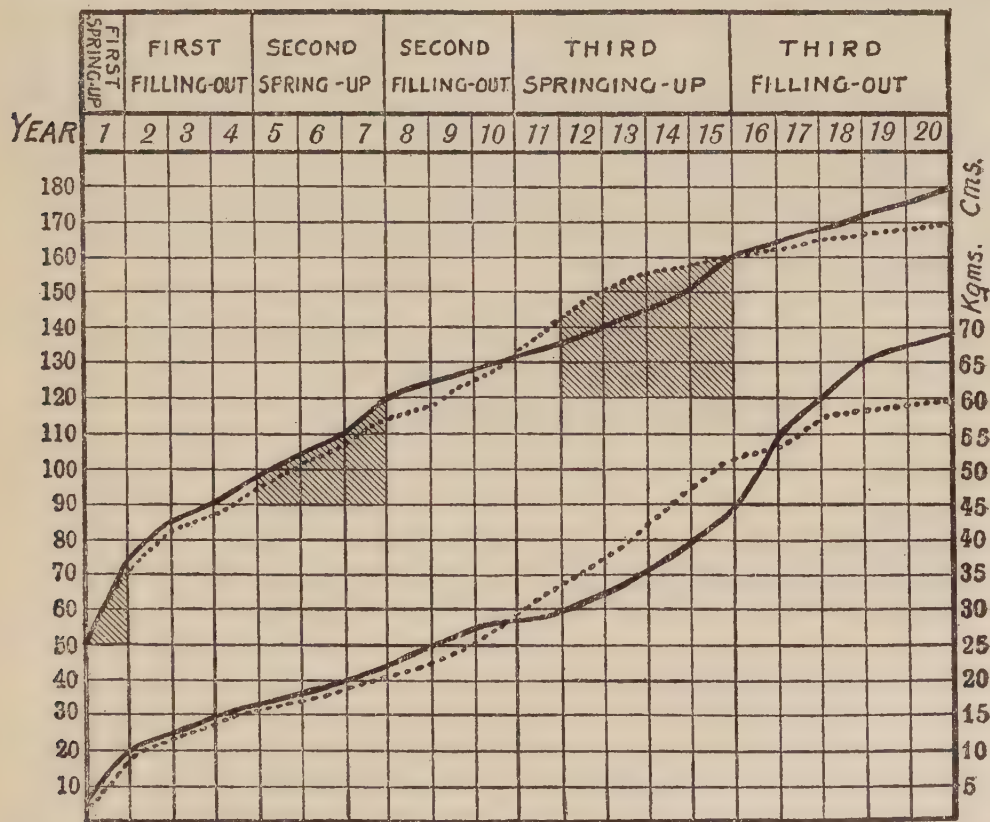


FIG. I.—The growth curve for height (cms.) and weight (kgms.) in the child to show the three “springing-up” periods followed by three “filling-out” periods. (The shaded areas represent the periods of rapid growth.)

Boys: ——— continuous line.

Girls: dotted line.

(After Stratz: *Der Körper des Kindes und seine Pflege*. Stuttgart, 1922)

Thus each “springing-up” period is followed by a “filling-out” period. Each “springing-up” period has its own peculiar problems and to a

lesser extent each "filling-out" period has its peculiarities. All these periods are apt to be upset by oscillations of growth, and may be modified by diet, environmental conditions, and disease. The first "springing-up" period presents the dangers of certain nutritional diseases such as rickets, scurvy, infantile diarrhoea and digestive disturbances. The second "springing-up" period from five to seven years and the first "filling-out" period immediately preceding it are peculiarly associated with the acute infections and fevers of childhood such as whooping-cough, measles, chicken-pox, and diphtheria. The second "filling-out" period from seven to eleven or twelve is the period during which the child presents in varying degree the *sequelae* of these acute infections. The problems presented during this interval concern themselves predominantly with the heritage of the diseases and deficiencies of the preceding years. Notably, defects of dentition and vision, enlarged tonsils and adenoids, middle-ear disease, and disease of the lymphatic glands in the chest, neck and abdomen call for urgent attention. This period of consolidation from the age of seven to that of eleven may be regarded at one and the same time as the opportunity for retrieving past errors of development and for preparing for the heavy demands necessitated by rapid growth during the third "springing-up" period of puberty.

The type of growth registered by this curve is far from being an adequate representation of the profound changes taking place in any given child, and deals wholly with changes in height and weight. Practically every external lineal dimension of the body, with the exception of the head and neck, follows this type of growth. The growth of the skeleton, of the limbs, of the thoracic cage and respiratory organs and of the muscular system as a whole conforms to this *general type of skeletal growth*.

TABLE I

Indicating the Percentage which the Principal Organs normally contribute to the Body-weight

Percentage of the Body-weight						In the new-born child	In the adult
Of Muscles	..	..	..	..	..	25.05	43.40
Skeleton	..	..	..	..	..	13.7	17.48
Skin and subcutaneous tissue	..	..	..	..	..	19.73	17.77
Brain	..	..	..	..	..	12.29	2.16
Liver	..	..	..	..	..	4.57	2.75
Stomach and intestine	..	..	..	..	..	2.1	2.06
Lungs	..	..	..	..	..	1.75	1.50
Heart	..	..	..	..	..	0.76	0.46
Kidneys	..	..	..	..	..	0.75	0.46
Spleen	..	..	..	..	..	0.34	0.25
Thymus	..	..	..	..	..	0.26	0.04
Eyes	..	..	..	..	..	0.24	0.02
Suprarenal glands	..	..	..	..	..	0.23	0.01
Salivary glands	..	..	..	..	..	0.21	0.12
Spinal cord (without membrane)	..	..	..	..	..	0.18	0.06
Thyroid body	..	..	..	..	..	0.16	0.05
Pancreas	..	..	..	..	..	0.11	0.15
Ovaries	..	..	..	..	..	0.026	0.012

(Vierordt, *Daten und Tabellen*, 1906, p. 44)

The growth of the brain, the eyeball and the skull is peculiar. From birth to the age of eighteen months, these organs grow with extreme rapidity; by the age of two years they have reached 60 per cent. of their adult size, and by the age of seven almost adult size. This type of growth may be regarded as *neural*, and applies to the brain, spinal cord, eyeball, ear and skull, exclusive of the face.

The lymphoid tissue of the body, as illustrated by the lymphatic glands, tonsils and thymus, grows rapidly in childhood and continues to grow at a somewhat slower rate until puberty. During adolescence and adult life there is both an absolute and a relative decrease in the amount of lymphoid tissue. In view of the extent to which the lymphatic glands are involved in children at all ages as a result of acute disease and of chronic infections, this third type of *lymphoid* growth must be of deep significance.

The fourth type of growth is that presented by the *genital organs*. These organs grow but slowly in infancy, remain almost stationary from two to ten, and grow rapidly in the two years before puberty, during puberty and during adolescence.

Scammon ⁽⁵⁾ lays emphasis on the fact that these four types of growth, general or skeletal, nervous, lymphoid and genital are but crude representations of the complexity of the process involved. Dentition is not completed until about the 21st year when the "wisdom" teeth erupt. Growth in the face and neck continues to the same age. The suprarenal glands, the paired organs which lie in relation to the kidneys, lose one-half of their weight in the first two weeks of post-natal life, increase slowly up to the fifth year, and do not reach birth weight until puberty. The uterus, which grows rapidly in the last month of ante-natal life, loses 50 per cent. of its weight in the first two weeks of post-natal life and does not begin to grow appreciably until two or three years before the onset of menstruation.

The ductless glands, or glands of the endocrine system, which have provided material for so many remarkable experimental observations and for so much doubtful theorising, present a picture which so far defies analysis. The thyroid gland displays steady growth from birth to maturity, with the tendency to enlargement in relation to puberty and pregnancy as a characteristic. The thymus follows the lymphoid type of growth. The pineal gland follows the nervous type, and the pituitary follows the thyroid. There is thus no trace of correlation in the growth pattern of the ductless glands.

It should be mentioned that the second "springing-up" period of growth between five and seven years is not so clearly indicated on some of the growth curves of height and weight as it in fact appears to the careful observer of young children. The cutting of the second dentition, often accompanied by nervous disturbances as significant as those of the first dentition, the marked lengthening of the face, the rapid development of the air sinuses in the face, and even the rapid lengthening of the foot in the sixth year, necessitating a larger size in footwear, the anxiety of the parents because the child is "going thin," the loss of subcutaneous fat—these are more evident to the careful observer of children than to the statistician.

It cannot be too strongly emphasized that there is no growth curve by which an individual child can be assessed. Even though both plants and animals tend to remain in adult life in that group into which they

fall in the early stages of growth there is no quantitative estimation of the genetic factors which result in the small babe growing to be a small man or in the big babe growing to be a big man. The differences between both animals and plants cannot be explained solely on the grounds of heterogeneity of environment. Neither the efficiency of the mother as extolled by Paton and Findlay ⁽⁶⁾ nor the health of the mother as emphasized by Elderton ⁽⁷⁾ can be regarded as the all-determining factor in the growth of the offspring.

SLOWNESS OF GROWTH IN MAN

In my memorandum, printed as Appendix II to the Consultative Committee's Report on *The Primary School*, the slowness of growth was emphasized as the main feature of the child. This slowness of growth deserves further attention. The growth curve in most domestic animals presents a gradual decrease in the growth factor from birth to maturity with no periods of relative retardation or acceleration. The neo-natal loss of weight which is so common in the human baby, amounting from 5 to even 10 per cent. of the birth weight, is not a feature of the domestic animals. The growth curves in these animals display a rapid development from babyhood through childhood to puberty. The animal continues to grow for a considerable time after puberty. Most domestic animals arrive at puberty at a time when the body weight is roughly one-third of the mature weight. On the other hand, man alone has a long-drawn out period of childhood, with eight to nine years intervening between the period of commencement of the second dentition and the onset of puberty. At puberty the boy or girl is roughly two-thirds of the adult weight. Further, the boy or girl takes a proportionally much longer time to increase the weight from puberty to adult life than does the domestic animal. In sheep, the adult weight is reached about six to seven months after puberty, i.e., the percentage decrease in the growth rate is about 15 per cent. In man, the adult weight is reached in nine to twelve years after puberty and the percentage decrease in the growth rate is about 3 per cent.

The absence of a period of rapid increase of growth at puberty in the domestic animals, in combination with a frank sexual behaviour pattern is well known. The presence of a period of rapid increase of growth at puberty, slightly earlier in girls than in boys, in combination with a prepubertal shyness, a pubertal reticence and a subsequent complex behaviour pattern indicates the danger of transferring data from animals to man.

Except in so far as it may resemble the growth curves of anthropoids (about which we have but meagre information), the growth curve in man is entirely distinct from that in all other animals. The latter afford but slight differences amongst themselves.

THE EXPERIMENTAL ASPECTS OF RETARDATION AND ARREST OF GROWTH

The lines of arrested growth due to acute infections or metabolic diseases such as diabetes were illustrated in the previous report. It was emphasized that our knowledge of the arrest of growth in organs other than the skeletal tissues was but imperfectly understood. A considerable body of data relating to arrest and retardation of growth has been derived from animal experiment. The position was postulated by

Darwin ⁽⁸⁾ when he stated that "of all the causes which induce variability, excess of food, whether or not changed in nature, is probably the most powerful". The potency of food has been recognised more clearly in animal husbandry than in the home or the school. Growth can only take place at the expense of food material, and unless this is always more than sufficient for the needs of the organism, the rate of growth must be dependent upon it. There are innumerable experiments which prove that excess of food and heavy feeding is more advantageous and profitable in the youngest stages of animal husbandry. The statistical returns on this fact are incontrovertible, both as regards the experiments upon young plants performed by Gilbert and Lawes ⁽⁹⁾ at Rothampsted in 1895 and innumerable experiments upon animals since that date.

The recent animal experiments upon the retardation of growth have been directed mainly towards maintaining the growing animal at a constant weight over a period of time. The obvious methods, following the classification of A. H. Smith ⁽¹⁰⁾, involved :—

- (i) Limitation of total diet.
- (ii) Limitation of total diet to minimal calorific value, but with the addition of the essential salts and vitamins.
- (iii) Limitation of ingested water.
- (iv) Restriction of protein.
- (v) Restriction of salts.
- (vi) Vitamin deprivation.
- (vii) Increase of the concentration of waste products in the body, as by removal of one kidney.

In all these experiments it has been found that the problem of retarding growth is extraordinarily complex. For instance, an animal on a salt free diet dies before an animal on absolute starvation. One of the most interesting results which have emerged is related to the effects of limitation of protein. Osborne and Mendel ⁽¹¹⁾ indicated the loss of appetite which is a feature of protein starvation. When animal and vegetable proteins are broken down to amino-acids by the action of the proteolytic ferments of the intestine (pepsin, trypsin and erepsin) it is found that the resulting amino-acids depend largely on the actual protein employed. Some amino-acids are not absorbed by the intestinal epithelium and are excreted as foreign bodies. The remaining amino-acids which are absorbed vary a great deal as regards their physiological significance. Thus an *adequate* protein is one which on digestion yields those amino-acids which are necessary for growth and repair of the tissues, and an *essential* amino-acid is one without which growth or repair cannot take place. There is now agreement that lysine, cystine, tryptophane and histidine are definitely *essential* amino-acids, and it is generally accepted that phenylalanine, tyrosine and proline are probably essential to physical well-being. It is of interest to note that two vegetable proteins, the gliadine of wheat and the hordein of barley, are relatively poor in some of these essential amino-acids which are more readily provided by the digestion of animal protein, particularly milk, eggs, fish and meat. There is thus incontrovertible proof that man is essentially an omnivorous animal. Wheat and barley have been used as a large and essential part of the diet in those experiments where growing animals have been kept at a constant weight over a considerable period of time.

This is the scientific reason for advising the use of cereals, such as wheat and barley, in their cheaper forms, e.g. bread or dry toast, rather than in the form of various patent preparations, especially in cases where economy is a consideration. Fresh cow's milk, eggs, butter, cheese, meat and fish are a better investment both as regards essential proteins and fat.

Of all the methods of rapidly arresting growth, salt starvation and the withdrawal of fluids are the most potent. Even to-day, when the significance of salt balance in the diet is well recognised, the provision of adequate fluid either as milk, skim-milk, oatmeal-water, barley-water or plain drinking water does not hold as important a place in the school and home as it does in animal husbandry.

RESUMPTION OF GROWTH

The question as to the extent to which an animal whose growth has been arrested can recover on the restoration of good or optimal conditions is of great interest. Aron ⁽¹²⁾ subjected dogs to a period of restricted diet whereby growth was decreased. Even when the dogs were restored to vigorous feeding normal weight was not regained. Aron ⁽¹³⁾ repeated the experiment with rats which had been relatively starved on a diet poor in protein. Restoration to a full diet did not result in normal growth. Jackson and Stewart ⁽¹⁴⁾ showed that young rats which were underfed for some weeks failed to regain normal weight. Yet, on the other hand, Osborne and Mendel ⁽¹⁵⁾ showed that the albino rat retains over a considerable period the ability to resume growth after retarded development.

Obviously, from the nature of the experiment, data on children are few and far between and the toll of intercurrent disease vitiates those mass experiments in starvation which occurred during the war. It is surprising to what an extent the young actively growing animal is upset by an injurious agent, but it is in some ways more surprising to what extent growth may be arrested in the young animal without transcending the limit of possibility of resumption in growth.

Of all the experimental observations which prove the futility of estimating growth and physical efficiency in terms of height and weight, probably there are no observations more fundamental than those of C. M. Jackson ⁽¹⁶⁾ based on a group of experiments in which the diet of the growing animal has been curtailed so as to keep the animal, during considerable periods, at constant weight. In none of these cases has there been total suppression of growth if the weight has been maintained at constant level. Total suppression of growth has usually occurred only in association with loss of weight and active disease. Wherever the graduated dietetic deficiency has maintained the animal at constant weight, there has been actual growth of the skeleton in linear dimension. This has only been accomplished by the animal consuming its own reserve of fat and muscle and using some of this for growth. This mobilization and actual consumption of the fat and protein depôts leads to a marked alteration of physique so that the outward bodily proportions are decidedly altered. The animal has been living on himself. It is this weedy type of growth which exposes the animal to such dangers from infectious diseases by reason of the loss of the fatty protective thermo-static layer, the loss of the muscle so necessary to active movement and digestion, and the depletion of that reserve which we call "resistance". This type of child, who grows in height without gaining weight, who

has a low degree of resistance, high fatiguability and general listlessness is not unknown in some of our schools. It is evident from what has been said about the adequacy of diet that such a child may present marked anorexia and loss of appetite. The condition has all the characteristics of a vicious circle. The more inadequate the diet in certain respects, the greater the anorexia. This condition is seen in the aetiolated seedling or "weed" of our city population.

It is necessary to emphasize how varied are the factors which lead to relative arrest of growth. Quite apart from the adequacy or sufficiency of diet, there is an important distinction between acute arrests of growth and chronic arrests of growth. Acute arrest of growth is most frequently seen in the acute infections of childhood, such as measles and whooping cough complicated by a severe broncho-pneumonia; in scarlet fever, diphtheria or typhoid. Chronic arrest of growth is seen in the longstanding infections such as syphilis, tuberculosis, empyema and otorrhoea. In tuberculosis there may be even active growth, for a mild degree of tuberculosis may act as a stimulus to growth. Humphry⁽¹⁷⁾ described cases 50 years ago in which the tuberculous limb was longer than its normal fellow.

In metabolic diseases such as diabetes, the arrests of growth may be proportional to the severity of the disease and may only occur during acute exacerbations. In rickets, the disease only occurs during a period of active growth. The non-growing child automatically loses his rickets. In scurvy rickets, renal rickets and coeliac rickets the pattern of growth is most complex, but the onset of the disease coincides with a period of active growth even though the end of the disease may present arrest of growth and deformity.

AMOUNT OF FOOD CONSUMED IN RELATION TO GROWTH

The commonest error in dietetics is a belief in the infallibility of human appetite. There is no more amazing example of credulity than that involved in the supposition that the hungry child or badly fed child will consume more food if he wants it.

It is twenty years since Hopkins⁽¹⁸⁾ proved conclusively that in animals reared on an inadequate diet, the failure in appetite follows the failure in growth. The animal stops eating because he has ceased to grow. He does not stop growing because he has ceased to eat. This fundamental fact is lost sight of repeatedly by parents, school teachers, school matrons and medical officers when reporting on the general nutrition of children. Hopkins says: "If then a factor or factors essential to growth be missing from or deficient in a dietary, the consequent arrest of or diminution in growth energy may diminish the instinctive consumption of food, while the supply of such factors may increase consumption as an indirect result of a direct effect upon growth." This dictum should be in mind whenever one is faced by the problem of the stunted starveling whose diet is automatically reduced in quantity of intake because it is deficient in quality. It is in these stunted starvelings, reared on a diet of bread, margarine, jam, sugar, tea, with occasional yet extravagant supplements of biscuits, chocolate and various beef "essences," that such phenomenal increases in food intake are seen once the processes of growth are set in motion by the addition of the necessary dietetic factors through the medium of fresh animal and vegetable food, with or without that wonderfully potent adjuvant, cod liver oil.⁽¹⁹⁾

The position may be stated in another form. The growing child requires the exhibition of adequate foods in surplus quantities, so that no failure of growth or failure of appetite may ensue. This is the pith of the plea for variety and freshness in food. The need for the "little extra" is more marked in young children than in older ones, and a special effort should be made to provide it. There is such a tendency in many educated households to reserve the variety of dishes for the adults whilst the youngest are condemned to the dull routine of baby food. It is a well known fact in animal husbandry that anything approaching extravagance in feeding should be reserved for the youngest animals, as they profit most by it.

THE MASTER TISSUES OF THE BODY

Throughout all the vicissitudes of growth, arrest and resumption, certain tissues of the body stand out by their unique power to withstand the implications of starvation or disease. The brain, first and foremost, maintains its growth and activity to an inordinate degree. The heart and diaphragm resist wasting so that the circulatory and respiratory systems may continue to function. The liver as the laboratory of the body, and the kidney as the main excretory organ of the body approach the brain, heart and diaphragm in resistance to the unfavourable conditions. For this reason they are justly termed "master tissues" and are the last to be influenced or sacrificed. The blood also may be regarded as a master tissue in that it makes valiant efforts to retain a constant composition during starvation. If there is any shortage of minerals or salts, the resistance of the blood is rapidly broken down and profound anaemia results. The skeleton is not a master tissue especially when the diet is inadequate in minerals and salts or vitamins. It is true that the animal will make an effort to grow in length, but the quality of the bone laid down is poor.

The tissues which waste most rapidly in starvation are the subcutaneous fat, the fat in the abdominal cavity, the voluntary muscles of the limbs and the involuntary muscle of the gut. [See Table I, p. 218]. The wasting of the muscles tends to be selective and the first muscles to be involved are usually the *deltoid* muscle of the shoulder, the *glutaeus maximus* of the buttock and the *vastus internus* above the knee. Later the *flexor* muscles of the forearm and the muscles of the calf begin to atrophy. As a result of the wastage of muscle and fat the skin becomes loose, wrinkled and unhealthy, so that when a portion of the skin is taken up between the fingers and then released, a wrinkled appearance is maintained. Wasting of the fat inside the abdomen gives undue mobility to the *viscera*, both the hollow *viscera* and the solid kidney, and may lead to prolapse of the *anal* mucous membrane.

Inasmuch as the wastage of the facial subcutaneous fat and muscles of mastication is so variable it is not possible to assess the degree of bodily wastage by the facial appearance only. The pinched face with pointed nose and ears and large eyes is an index of dehydration rather than starvation. Furthermore, in many forms of starvation the actual degree of wasting is masked by the swollen, water-logged subcutaneous tissues which may be so oedematous as to simulate dropsy.

The behavioural characteristics of starved animals are as variable and as difficult to assess as those of starved children. In both animals and children the response to starvation in the earliest stages may be

increased activity, either muscular or mental. In the later stages inactivity, mental apathy, leading on to muscular inertia and lethargy is seen. The difficulty in maintaining sustained effort is emphasized and this was probably the main feature of the children in areas where war hunger was rife in 1918-1920.

Muscular activity in starvation.—The existence of increased muscular activity as a reponse to the early stages of starvation in certain animals and children is well known. It is essentially a response to the subjective sensation of cold which so frequently accompanies hunger. It is a common sight on a cold day to see children with hands in pockets jumping on and off the curb with rapidity in order to keep warm. The very attitude of the child displays in the posture of the hands and chest an attempt at "curling up" to keep warm; the motor activity of the lower limbs is an attempt to keep warm by increasing the heat production as a result of muscular effort. The furtive appearance in combination with increased muscular activity is seen in children no less than in animals. In the later stages of starvation animals curl up so as to avoid loss of heat; hunger and appetite not infrequently decrease so that the animal presents the picture of listlessness.

THE DIET OF THE GROWING CHILD

At a time when the field of dietetics tends to be obscured by the phenomenal increase in our knowledge of the vitamins and the significance of the balance of calcium and phosphorus, it is wise to consider certain other potent essentials in the diet of the growing child. There are four cardinal facts with regard to diet. The first is that man, in common with other mammals, lives and grows most rapidly from birth to the cutting of the first teeth on mother's milk. The second is that the more the composition of the food differs from the composition of the adult tissues the longer must that food take to be digested and absorbed into the tissues. For this reason the placid cow takes the whole day to eat and chew the cud, whereas the dog, cat and man find time for other activities. The third is that there is no such thing as a single natural food for man. The fourth is the surprising range of "uneconomic" adaptability to abnormal diets which can be displayed by the growing animal.*

Milk is the one and only article furnished and intended by Nature as food for the new-born. Milk is peculiarly the one natural food, and it is designed to carry the babe up to the period of the cutting of the milk teeth. This is as true of the kitten, pup, calf and colt as it is of the human babe. This biological fact does not entail that we should have nothing but milk after cutting the milk teeth. Milk contains all three foods, butter-fat, milk protein or caseinogen, and milk sugar, the carbohydrate. It contains the necessary mineral salts, particularly lime and phosphate. It contains all the vitamins when the milk giver is in good health. It is deficient in one respect only—its content of iron.

* Spallanzani (20), about one hundred and fifty years ago, showed that with patience a pigeon could be gradually accustomed to a meat diet, and an eagle to a diet of bread. Such an experiment is a valuable index of the range of adaptability in animal life, but is not a safe index for rearing pigeons or eagles.

There are many and obvious reasons why milk cannot be continued as the sole food of the growing child and adult. In order to provide the energy for a day's work and play, quite apart from the energy necessary for growth, the child would require an unwieldy volume of milk. However the problem of diet is approached the significance of the composition of milk as a mixture of fat, protein and carbohydrate is paramount. All the foods of man, ancient and modern, illustrate the search for a mixture of foods which would approximate to milk as regards the mixture of fat, protein and carbohydrate. Man has been mixing his foods and his drinks for countless years, blindly searching for a mixture which would not depart too far from the fluid that had stood the test of time since the first milk-giving animals appeared on earth. Notwithstanding all the sound writing about the art of cooking, good feeding, gastronomy and dietetics, the main object of man's labour in this direction has been to imitate in a less bulky form the mixture provided in milk. Milk has two great disadvantages. It will not keep fresh for any length of time ; it is extremely poor in iron. Laboriously man learnt to make fermented milk, butter and cheese, and to add these to the carbohydrate cereals which agriculture was providing in increasing quantities. The same yearning for a mixed diet led him to fatten the domestic animals and birds so that he could obtain both protein and fat in one morsel.

In these days when so much of our food comes from abroad it is essential that the housewife should understand what is meant by the term " fresh food." Fresh food is food which is fresh from the animal or the plant. Foods which have been transported huge distances in refrigerators may be reasonably fresh. This applies to butter and meat. Cheese, a valuable and somewhat neglected article of food, even when transported from New Zealand is relatively fresh, since it is a food which undergoes natural ripening with the aid of bacteria which are friendly to man. On the other hand, cereals which are cooked abroad and then imported as ideal breakfast dishes for children are but stale food.

If a varied supply of fresh food is available, there is no need to worry to any extent about vitamins or a balanced diet. Man is not exclusively a vegetarian or a meat eater. He requires a mixed diet. No amount of sunshine or fad-feeding will make up for a diet of white bread, margarine, jam, tea and tinned milk. It is unfortunate that milk, butter and eggs, together with home-produced meat cost so much. There are, however, certain cheap sources of animal fat which the housewife should use more extensively. In the first place marrow-bones yield in addition to the blood-forming red-marrow and the gelatine, about one-fifth of their weight of pure animal fat. Marrow-bones should be the basis of all broths and soups. Secondly, the fresh herring gives a high yield of fat for energy and protein for flesh forming. A working-class family can ill afford to neglect the marrow-bones and the herring.

THE SHORTAGE OF ANIMAL FATS

The results of animal experiments by Mellanby ⁽²¹⁾, Cramer ⁽²²⁾, and others have proved the importance of an adequate ration of animal fat. The investigations of Corry Mann ⁽²³⁾ on the effect of an additional ration of cow's milk to growing schoolboys proved that gain of weight and height was accompanied by improved health and " spirit." When an infant is weaned it is consuming almost a quart of milk a day,

containing about $1\frac{1}{2}$ ozs. of actual fat. As the child is weaned, in order to guarantee the fat intake, a pint of milk and one ounce of butter per day are necessary. The total consumption of milk fat in fresh milk and butter for the whole population is decidedly below this desired quantity and is nearer to $\frac{1}{2}$ oz. of butter and $\frac{1}{4}$ pint of milk per head per day. Thus the consumption of milk-fat and butter in children is probably less than one half the requirement. Allowing for the fact that the poorer classes cannot afford fresh milk and butter, but rely on margarine and condensed milk, the average consumption in the growing child is probably about one quarter of the optimum.

With a small family budget, fresh food is difficult to supply in adequate quantities for the growing child, especially if there is no garden supply of fresh vegetables and salads. For the growing child there is one cheap method of remedying the deficiency of fresh food, and one alone. This is the supply of a daily ration of one teaspoonful of cod-liver oil during the winter months. In relation to the certainty of action of butter and cod-liver oil in the case of children a mass experiment in Denmark, as reported by Bloch (²⁴), may be quoted. From 1914 to 1917 many of the Danish babies suffered from malnutrition with sore eyes, owing to the difficulty of obtaining fresh milk, butter and eggs. In December, 1917, the Danish Government took over the whole supply of butter and rationed it. Half a pound was allowed for everyone, weekly, at a low price. From that date everyone ate butter instead of butter substitutes and this particular form of malnutrition in association with sore eyes disappeared. The Danish doctors had also found that all such cases in hospital during the war could be rapidly cured by cod-liver oil. This is of considerable historical interest as an Edinburgh physician, John Hughes Bennet (²⁵), had cured similar cases in Edinburgh nearly a century ago.

A valuable adjunct to milk and butter is cheese, for it contains not only butter fat, but also protein and valuable calcium and phosphorus in addition to other salts.

THE POWERS OF RECUPERATION IN THE CHILD

The powers of repair after injury or disease in childhood are striking. We constantly hear the expression "he will probably grow out of it" in reference to skeletal disease such as rickets, failure of control such as bed-wetting, or disabilities such as stammering. Underneath this idea of outgrowing disease there is a modicum of truth, though all too frequently the phrase has become the last refuge of the incompetent physician and the last hope of the harassed mother.

It is of interest to examine the extent to which children "grow out of it" in relation to disease in the organs involved in the four types of growth which were surveyed earlier.

In the skeletal organs the power of repair is comparatively great.* The slight degrees of bow-legs, knock-knees, and flat feet which are so common in children from 2 to 4 years, almost invariably disappear by 10 years of age. The pigeon-breast and other deformities associated with emphysema (loss of elasticity) of the lungs, and bronchiolectasis (dilatation of the bronchioles) after severe whooping cough and

* For detailed clinical accounts of repair in bone see *Bone Growth in Health and Disease*. H. A. Harris, Oxford University Press, 1933.

pneumonia often disappear. The child tends to grow clean of limb and straight of trunk after severe deformities. In no case is this seen to greater advantage than in the bony deformities of rickets which disappear to a large extent, irrespective of treatment, because of the innate tendency towards symmetrical and harmonious growth (see Fig. II).

In the organs involved in the lymphoid type of growth, the extent to which the phenomenon of "growing out of it" is exhibited is less marked. Yet even now there is a pronounced tendency to hesitate for a time before recommending the wholesale removal of tonsils and adenoids. Similarly with enlarged tuberculous glands in the neck, the tendency to-day is against operative treatment. We have learned the extent to which the enlarged tuberculous glands will heal under suitable conditions, of which rest to the diseased part is the most important.

The organs involved in the urogenital type of growth display varying degrees of damage and repair in illness. The kidney is frequently injured in the acute fevers of childhood. Yet the nephritis following scarlet fever and diphtheria usually clears up with or without medical treatment. It is probable that carefully guarded convalescence with competent medical supervision of the diet would lead to a decrease in the number of cases of chronic nephritis. As regards the genital organs it is well known that mumps is frequently complicated by a severe orchitis in the male, or a severe mastitis in the female, with permanent damage to either organ according to sex. This is not an uncommon occurrence in puberty or adolescence. It is very rare indeed to find any definite injury to the testicle or breast in the child.

In the organs involved in the nervous type of growth, the brain and the organs of special sense, the potentiality to grow out of the disability is minimal as the process involved calls not only for repair to the damaged tissue but also for re-education, unless, as is sometimes the case, the lesion is so extensive as to lead to complete loss of function.

The nervous system as a whole is insulated from the rest of the body in a peculiar manner. It has an astounding precocity of growth, not only centrally in the brain, but also in the special sense organs, such as the eye and ear. The rate of growth of the brain, which reaches 83 per cent. of adult weight at 7 years of age, has already been emphasized. The diagram (see Fig. III) shows how the size of the cranium increases in accord with the growth of the brain, whereas growth in the face (and concomitant dentition) continues until adolescence.

In the case of the eye as a whole the growth is more precocious than that of the brain. The conjunctival sac is almost adult in size at the end of the second year. The eyeball grows with extreme rapidity in the first two years and by 7 years has completed its growth. The eyes are so prominent a feature of the face by reason of their relative overgrowth in babyhood.

The tympanic membrane or drum of the ear, the ossicles of the ear, the actual cochlea of the internal ear and the semicircular canals are more precocious than the eye. The radiograph of the human foetal skull of twenty-two weeks of foetal life shows the early ossification in the tympanic ring around the drum and in the semicircular canals. After the sixth month of foetal life there is no appreciable growth in the actual drum of the ear, in the semicircular canals (the organs of equilibration), in the internal ear (the organ of hearing). It is at this time that



FIG. II.

Radiograph of the leg of a child aged fourteen months with severe rickets.

Radiograph of the same case after three months' treatment with cod liver oil.

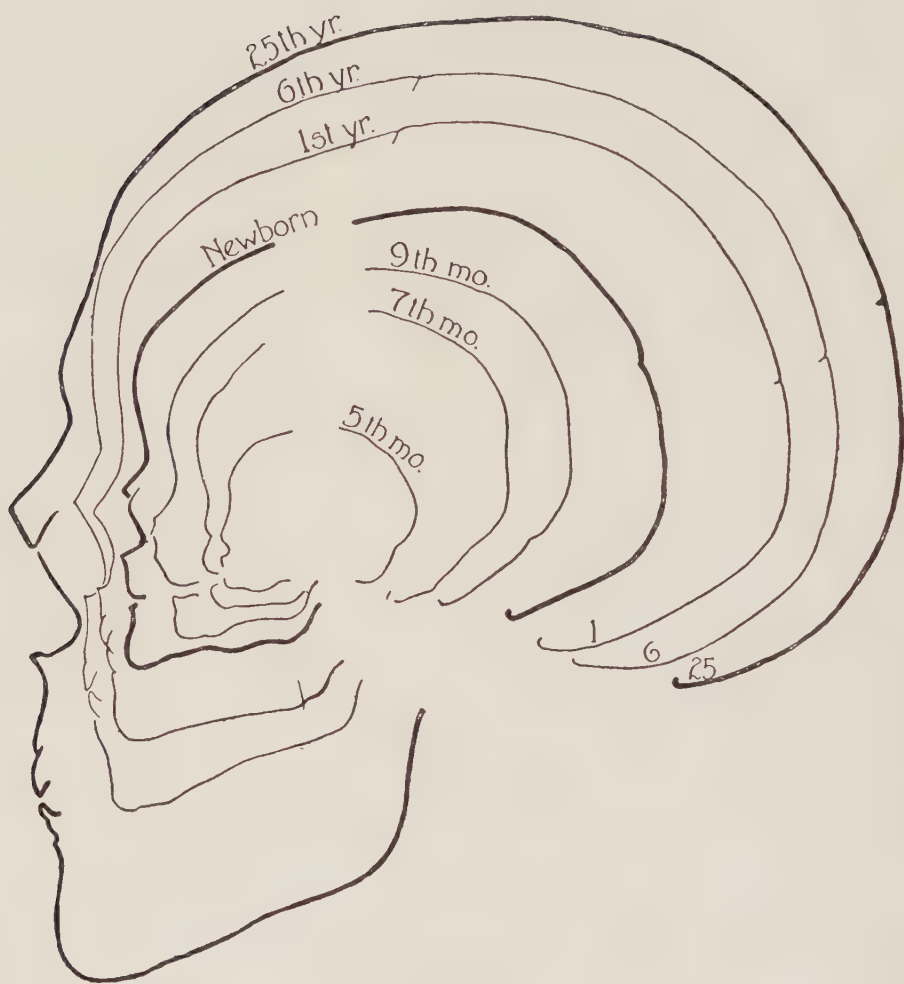


FIG. III.

Outlines of skull to show the precocious growth of the cranium, and the relative retardation of growth in the face.

the human foetus presents rapid growth of the muscular system, myelinization of the vestibulospinal tract in the spinal cord and that active muscular movement which gives to the mother the subjective symptom of "quickenings" in the child.

The eye and the ear differ considerably as regards the effects of age. Whereas the organ of hearing has reached its definitive adult size before birth, the eye is an optical instrument of geometric exactness which has to adapt itself to certain definite changes in the growth of the brain and skull throughout childhood. The eyeball itself alters in shape with age. Shortsightedness, ranging through normal vision to longsightedness is an age change, susceptible to arrest or rapid changes with growth. The irregular rates of growth in the complexity of parts lead to certain failures of adaptation which are common in young children. The degree of muscular coordination involved in the movements of the eyeball by the ocular muscles is high. Failure of coordination results in one form of squint or *strabismus*. The child in many cases tends to grow out of this but by far the greater number of cases of squint require correction by glasses, special exercises and even operation.

It thus becomes apparent that the varied anatomical and physiological features which characterize certain organs are paralleled by differences in the growth pattern which can be crudely classified as skeletal, neural, lymphoid and urogenital. These various organs, once injured by acute or chronic disease, display a power of repair which is maximal in the skeletal organs and minimal in the nervous system. The period of convalescence after illness presents difficult problems of treatment and prognosis, according to the particular organs involved in the disease.

SLEEP AND WAKEFULNESS

Sleep is essential to refresh the wearied body and exhausted mind. In children sleep is essential not only to exercise a restorative effect over the functions of life but also to grant respite from the exhaustion produced by enforced standing and enforced stationary posture. Standing motionless and sitting still in one position are tasks which involve considerable effort and inordinate fatigue in the young. In order that sleep should be adequate it is necessary that it should take place at a stated hour, continue for a definite time in a comfortable restful position without any disturbance of the natural functions by overheating, faulty digestion or congested atmosphere. In children with a poor circulation, cold feet frequently prevent the onset of sleep.

The amount of sleep necessary varies greatly with the state of the body, the temperament and the habits of the individual. Infants pass most of their time in sleep: children under two may sleep 12 to 14 hours: children from two to seven may sleep 10 to 12 hours. It is quite usual for them to take up to 30 minutes to fall asleep. Disease or uneasiness of any kind often produces unsound sleep. The diseases which are most frequently associated with wakefulness are the acute fevers, inflammatory disorders and cerebral diseases. Disturbed sleep is seen most frequently in those children subjected to some form of peripheral irritation such as a skin irritation, worms, phimosis, or a foreign body of any kind in proximity to any one of the orifices of the body, either cranially or caudally. The troubles of dentition and earache are also an incubus.

In disease of bone and joints such as rheumatism, disturbed sleep and "night cries" are common. In disease of bone and cerebral disease pain itself may awaken the child. Epilepsy and other cerebral conditions are potent disturbers of sleep. In the relatively healthy child, indigestion and intestinal disturbance due to the heavy meal before retiring or overheating are common causes. Children are commonly disturbed in their sleep by bouts of coughing. The parents are frequently more disturbed thereby than the children.

When sleeplessness arises from over-activity of the mind, an endeavour must be made to change the mode of behaviour and the train of thought in the hour before retiring to rest. The bath and absence of supper are to be commended. In certain children self-reproach, blighted hope, or carking care will disturb that composure which is so essential to sleep. Wounded vanity or a promise imprudently unfulfilled are also of some significance.

EXERCISE AND MOVEMENT

There is a tendency to forget that animal life, as distinct from static vegetable life, is essentially dynamic. Animal life subsists through a series of movements and all these movements should be sustained in regular and adequate exercise. Respiration, digestion and the circulation of the blood involve movement. All the excretory operations involve movement. If any become suspended, or decline in activity, the organs shrink and more or less deleterious effects on the general health ensue, according to the importance of the parts consigned to stultifying quiescence. If the organ undergoes prolonged suspension of movement, its anatomical structure degenerates. Muscular fibres, consigned to inactivity, waste progressively with corresponding loss of power. The laws of muscular action, whether in the voluntary muscles of the body, or in the involuntary muscles of the blood vessels and alimentary canal, require that the muscle, in order to maintain structure and function, must be guaranteed both adequate exercise and rest. Otherwise the muscle declines in volume and power, and all the functions to which its actions are subservient become impeded.

THE SKIN

The skin or integument is a continuous organ, covering the whole body. It consists of a superficial part called the *epidermis* or cuticle and a deep part called the *dermis* or corium. At the orifices of the body the skin is replaced by the pinkish mucous membrane as at the lip and eyelid. The mucous membrane is an integument of greater delicacy, in which the superficial layer or epithelium is very transparent and the deep layer highly vascular. The deeper layers of the skin contain much connective tissue which yields gelatine on boiling. Deep to the whole integument is a subcutaneous layer of fat, the *panniculus adiposus*.

The *epidermis* in the new-born babe is about 0.2 mm. thick and the *dermis* 0.8 mm. In adults the *epidermis* varies considerably in thickness, ranging from 0.1 mm. on the cheek to 0.8 mm. on the palms and finger tips. The *dermis* amounts to 2 mm. or even 3 mm. on the sole of the foot.

Structure of the skin.—The *epidermis* consists of flat cells, several layers deep, of which the deepest layer is actively proliferating, whereas the more superficial layers consist of virtually dying and dead cells

which are shed naturally or removed by washing. The number of layers of cells varies in different parts of the body with age and with constitution. Some children naturally have a thick skin, others, such as red-haired children, naturally have a thin skin. Pallor or flushing at the onset of illness or under emotional stress has not the same significance in the two types. The *dermis* also differs considerably with age, site and diathesis. Further, the amount of pigment in the skin varies with race, age and environment. As a general rule all pigment, even in the coloured races, appears at or after birth. It may be wise to emphasize that certain children fail to develop a natural tan to sunshine and out-door exposure. These must be treated carefully as they are apt to suffer from sunburn.

The vessels of the skin exhibit considerable variation in richness of distribution and the relative depth at which they lie. In some children a flush is easily seen because the vessels are relatively superficial. In others the converse holds. It should be noted that the cutaneous veins lie superficially, as on the back of the hand. They enable large volumes of blood to be brought rapidly to the surface to be cooled in order to reduce bodily temperature during or after violent effort, and react to a cold environment by contraction. The vessels of the skin are under the control of the sympathetic autonomic nervous system.

The skin is characterized in most areas of the body by the presence of hair in association with sebaceous glands and sweat glands. In the unborn babe the relatively unpigmented fine hair is called lanugo or "down". It often persists with undue prominence on the face, neck and back of children who are definitely below the average in physical and nutritional development.

The fatty subcutaneous layer is well developed in the new-born child, except in the eyelids, scrotum and penis. In the adult the subcutaneous fat varies considerably with habit, diet, sex and climate. The period of life at which the subcutaneous fat is reduced to a minimum corresponds to the second "springing-up" period (5-7 years) and again, in certain cases, old age. The reduction of subcutaneous fat at the commencement of the second dentition, when the child exchanges the chubbiness of infancy for the familial physiognomy at a time of rapid growth, is of great import.

This is the time when so many children are either undergoing an attack of the various infections of childhood or suffering from some of the common sequelae thereof. It is sufficient to say that this fatty subcutaneous layer, like that which lines the interior of the abdominal cavity, exercises a valuable function as a thermostatic layer tending to keep the body temperature constant. Any considerable reduction thereof is associated with increased susceptibility to extremes of changes in external temperature.

Since the new-born babe has a much larger surface area in relation to body weight than the adult, the cooling of the body tends to be very rapid in the former. In the case of the new-born infant for each pound of body weight there is a surface area of roughly 45 square inches: at 2 years of age to each pound of body weight 36 square inches: at 7 years of age 30 square inches and in adult life 16 square inches. Thus heat loss in the child is much greater than in the adult. This is the reason for the extreme degrees of motor activity which children display

to cold. They not only shiver but they run and jump to keep warm. If they are underfed or overdisciplined they suffer under such conditions. The underfed child has too much surface area in proportion to weight. He "catches" cold easily. This is more so in the case of the underfed lanky child above average height than in the case of the underfed starveling who is under average height.

The skin, in addition to providing a protective function, also serves as an excretory organ, an organ for regulating the temperature of the blood and a peripheral nervous organ. The skin serves as an excretory organ by ridding the body of carbon dioxide, urea and sweat. The amount of carbon dioxide excreted by the skin is about one seven-hundredth of that excreted by the lungs in the expiratory air. Yet this amounts to 5 gms. in 24 hours. There is sound evidence that in the infant the excretion of carbon dioxide through the skin is double that in the adult.

The excretion of sweat by sweat glands is considerable. The new-born babe pours out in the form of insensible perspiration about $\frac{1}{2}$ oz. per pound of body weight in 24 hours. This rises to nearly 1 oz. per pound of body weight at one year of age, and is roughly $\frac{1}{4}$ oz. per pound of body weight in the adult. The adult sweats 40 ozs. per day. During physical effort the quantity may be increased ninefold, as in the tinplate worker or coal miner. Thirst is an expression of a natural demand for replacement of body fluids lost in sweating, micturition and defaecation.

The sweat glands begin to develop in the fifth month of embryonic life as down-growths from the epidermis. The degree of development at birth and in early childhood shows marked individual variation. Visible perspiration, as distinct from insensible perspiration, is rarely seen in the babe under 5 months. Quite distinct from the ordinary sweat glands are those specialized sweat glands, associated with a characteristic odour of the secretion, which develop in the axilla and genital region, and the glands which secrete wax, as those of the ear-hole.

The sebaceous glands develop in relation to the hair follicles. They are well-developed in the new-born child. They persist as "free" sebaceous glands in areas, such as the chest and neck, where the hair does not persist, and frequently give rise to sebaceous cysts. In relation to the hair follicles are special involuntary muscles buried in the skin, the *arrectores pilorum*, which can cause the hairs to stand up—as seen in "goose-flesh." It is important to note that the erection of the hairs as seen in goose-flesh is an involuntary reflex response to cold or, more rarely, to fright. Goose-flesh is not usually seen in the child under 2 years. Like the sweat glands and the blood vessels of the skin, the *arrectores pilorum* are under the control of the sympathetic autonomic system. The absence of goose-flesh under 2 years of age serves as a useful reminder that temperature control is not acquired until the end of the second year.

The persistence of lanugo or "down" in children of poor constitution has already been mentioned. In such children the eyelashes are often dark, long and unusually curled. Even in the normal child the eyelashes reach their adult length before 5 years of age, so that they present that precocity of growth which has already been emphasized in the case of the eyeball. This fact also explains the aesthetic appeal of the eyes in children.

The nails often give valuable evidence of the nutritional condition as well as of the habits of children. The longitudinally fluted, brittle nails of malnutrition are familiar. After severe illnesses transverse ridges are often seen in the nails and they register the periods of acutely arrested growth previously described in the long bones. The growth of the nail is about 1 mm. per week, or roughly one-half the rate of growth of the hair. The hair like the nails often affords evidence of the nutritional condition, no less than of the habits of personal cleanliness.

At the time when the loss of subcutaneous fat in combination with rapid increase of stature and eruption of the second dentition is most marked, from 5 to 7 years of age, the furrows, lines and dimples of the skin tend to become fixed for life.

The pattern rarely changes after this age, though the furrows, lines and wrinkles may become deeper. On the face in particular the increase in wrinkling of the forehead and in the "crow's feet" under the eyes should call attention to possible errors of refraction in the eyes. Children who are hard of hearing frequently acquire either a countenance lined by anxiety or a blank, expressionless stare. The facies is worthy of careful study in relation to certain mental characteristics. In malnutrition the skin often becomes lax and wrinkled, loses its native elasticity and gives a senile appearance to the child.

The colour of the skin depends largely on the thickness and transparency of the *epidermis*, the extent to which the blood capillaries transmit their colour through it and the development of pigment in its deep layers. For this reason it is very difficult to assess in different children pallor or cyanosis, anaemia or plethora, even cleanliness or dirtiness, by vision alone. The rosy freshness of the child's skin has not only particular beauty but also definite sources of weakness. The thin epidermis is only slightly protected against mechanical injury through over-vigorous washing and rubbing. The epidermis is as easily destroyed by the over-application of alkaline soaps which remove the natural fat, faulty drying, and exposure to cold dry winds or too much sunshine, as by dirt and parasites. Foreign bodies and bacteria effect an entry easily. Children are susceptible to *staphylococcal* infections (pimples and boils) and to *streptococcic* infections (*impetigo contagiosa*). Certain children, particularly those of the asthmatic diathesis, are peculiarly liable to rashes, such as prickly heat or nettle rash, as a result of undue exposure or dietetic idiosyncrasy.

The Skin as a Nervous Organ.—The skin is richly supplied with nerves, and in the child the concentration of nerve endings per square inch of skin is obviously greater than in the adult, since no new nerves are formed after birth. On the other hand, the nerves of the skin do not function properly at birth and it is only gradually that the functions of the special nerve endings are brought into action for the registration of pain, heat, cold, coarse touch (protopathic) and light touch (epicritic). The sensory nerves subserving these functions are associated with definite nerve endings for each function. The nerves controlling the vasoconstriction of the blood vessels of the skin, and those controlling the *arrectores pilorum* (for goose-flesh) and the sweat glands are not under the control of the voluntary nervous system, but are subject to the autonomic sympathetic nervous system.

It cannot be too strongly emphasized that stimulation of the nerve endings, varied and frequent, by touch, exposure, sunshine and fresh

air is a valuable part of the education of the peripheral nervous system and gives the child that sense of aliveness and awareness which is essential to purposive activity in later life.

The Hair.—The general conditions of nutrition are often reflected in the condition of the hair. This fact is keenly appreciated by the exhibitors of animals in agricultural shows. It is definitely known that the hair is also influenced by the endocrine glands. In deficient secretion of the thyroid gland the hair becomes brittle, poorly pigmented, even to the degree which is described as "mouse-coloured." In certain disturbances of the suprarenal gland excessive hair growth is often seen. The changes in distribution, quantity and quality of the hair at puberty in the two sexes is related to the secondary sexual changes. At present our knowledge of the hair in terms of nutritional, endocrine, and diathetic factors is such that one is dependent on a somewhat rough and ready appreciation of the condition of the skin, subcutaneous tissue and hair in general rather than in particular.

The powers of observation which are necessary for appreciation of the physical and mental condition of a child are not easily acquired and the observations are frequently qualitative rather than quantitative. The posture and gait of the child are suggestive. The movements of the head and neck, the disposition of the hands, the shuffling of the feet, involuntary movements or spasms of certain muscles strike the onlooker. The coloration of the skin and mucous membranes, the condition of the subcutaneous fat, the character of the hair, the facial expression and the brightness of eye yield information. The tonus of the muscles, the recent loss of weight and the alertness or apathy are registered. There is no single feature which may be regarded as a safe index to the condition of the child. The summation of the features noted by the most careful observer is not infallible.

VISION

The one fact which emerges from the study of the comparative anatomy of the eye is the close association between vision, tactile discrimination and motor skill. As Elliot Smith ⁽²⁶⁾ has repeatedly emphasized, the distinctive power of the human brain confers upon man the ability to see the world and what is happening in it with an appreciation of visual experience denied to all other living creatures. It is important to realize that vision, tactile discrimination and motor skill have to be acquired slowly after birth. At the time of entering school most children are markedly immature in respect of these three qualities. The acquirement of all three is a slow process which emerges in a more or less constant pattern, but at varying times and to a varying degree in individual children.

The immaturity of children must be borne in mind when designing any programme of formal education which makes a call on vision, tactile discrimination and manual dexterity. The child gradually builds up types of response which are individual and distinctive, and not necessarily conformable to any general laws of pedagogy. At birth the infant is not only virtually deaf, but to all intents and purposes olfaction, taste and vision are but poorly developed. Such movements as occur in response to the stimulus of touch, cold, light and sound are little more than those which are exhibited by the new-born pup or

kitten. The infant does not respond to light for some weeks. The following average times of appearance of certain responses are given by Mary Cover Jones⁽²⁷⁾ :—

Smiling	..	..	..	..	..	58 days.
Eye movements :—						
Horizontal co-ordination	..	..	..	..	..	58 ..
Vertical co-ordination	..	..	..	..	..	65 ..
Circular co-ordination	..	..	..	..	..	78 ..
Blinking	..	..	..	..	..	76 ..
Opposition of the thumb	..	..	..	..	..	148 ..
Reaching	..	..	..	..	..	152 ..
Sitting	..	..	..	..	..	217 ..

The orderly progression of stages of convergence, accommodation and appreciation of distance in the development of vision precedes the various stages which lead up to orderly locomotion. The stages of walking have been analysed by Gesell⁽²⁸⁾ as follows :—

Crawling occurs at 4 months in 90 per cent. of cases.

Creeping	..	..	6	..	..	10	..	..
..	..	..	9	..	..	75	..	..
..	..	..	12	..	..	85	..	..

Standing with help occurs at 9 months in 35 per cent. of cases.

..	..	..	..	..	12	..	..	90	..	..
..	..	alone	..	..	12	..	..	35	..	..
..	..	..	..	..	18	..	..	90	..	..
Walking	..	..	..	..	12	..	..	35	..	..
..	..	..	..	..	18	..	..	90	..	..

It is well known that in feeble-minded children vision, tactile discrimination and muscular control are retarded to varying degrees. Whereas the majority of normal children walk at about 14 months, feeble-minded children walk at about 2 years. As determined by Mead⁽²⁹⁾, the age of walking seems to be related to general mental development.

The ages given above are approximate and it is well known that girls on the average are precocious as compared with boys. It cannot be too strongly emphasized that walking on two legs involves a much higher degree of tactile discrimination and a much higher degree of visual perception and appreciation of distance than that exhibited by animals which walk on four legs.

Even at the risk of appearing vicariously anxious about vision in children it may be said that it is quite possible that the eyes may be as sensitive to errors of diet, to undue strain, to unfavourable environment and to acute illnesses as the bones of the skeleton. Eye-strain, squint, short-sightedness and even mental disturbances may result from severe illness or dietetic deficiency. The infant at first sees "as in a glass, darkly." Gradually he appreciates varying degrees of brightness in objects, learns to focus on near or distant objects by the effort of "accommodation," ceases "to reach for the moon," acquires binocular stereoscopic vision and judges distance and colour. Whereas most muscular efforts such as the orderly ones of respiration or walking involve the alternate use of antagonistic sets of muscles, accommodation for near vision is peculiar in that it involves sustained muscular effort over a considerable period of time. The muscular effort involved in reading should be compared in many respects to that required in maintaining the arm aloft for a considerable period.

The increase in size of the eyeball in postnatal life is confined to infancy and early childhood. The growth is most rapid in the first 2 years of life and by 5 years of age the eyeball has almost reached its mature dimensions. A considerable amount of this increase of growth is due to increase in the thickness of the coats of the eye so that the lens and the cornea show the least postnatal increase. It is estimated that the increase between birth and maturity in the diameter of the cornea is only 2 mm. or about 20 per cent. This occurs almost entirely during the first two years. It is evident that the precocity of growth displayed by the eyeball is more marked than that of the brain. Moreover, growth of the eyeball ceases before that of the brain. It is not surprising that the rapid growth of the conjunctival sac, the cornea and the eyeball should thus lead to a peculiar susceptibility to injurious agencies during early childhood. Furthermore, although the lachrymal (tear-forming) gland effectively washes the conjunctival sac with secretion (tears) of considerable bactericidal power, the actual lymphatic drainage of the eyeball proper is subject to many obstacles especially during sustained visual effort.

The eyelashes are special hairs, associated with which are distinctive sebaceous glands called Meibomian glands, which are peculiarly liable to infection and inflammation in childhood. The lids become red and heavy, the eyelashes fall out and frequently styes appear. The sore eyes are largely attributable to dirt, but the condition is aggravated by eye-strain. Styes occur frequently during malnutrition or in convalescence after an acute illness. Inflammation of the margins of the eyelids is called "blepharitis." Not infrequently children present another form of sore eyes called "pink eye" or "conjunctivitis" in which the delicate lining of the front of the eyeball and of the back of the eyelids—the conjunctiva—is inflamed. Conjunctivitis often occurs in epidemic forms and calls for strict routine in cleanliness not only of the eyes but also of the hands, nails and towels. In cases of malnutrition and tuberculosis small white patches progressing to ulcers appear on the rim of the anterior layer of the eyeball—the cornea. This is called *phlyctenular conjunctivitis*. The condition is chronic and is rarely cured except by good feeding, a change of air and improvement in the general health.

Eye-strain is a term loosely used for a condition which is common in young children. Frowning, blinking and even twitching of the face and rubbing of the eyes occur with or without subjective symptoms of headache. In short the eyes are easily fatigued. The treatment for fatigue is rest. As lying down is the treatment for the undue bodily fatigue of long standing, so resting and sleeping in a dark room is the only treatment for fatigue of the eyes. Bright light, whether of the sun or the cinema, exhausts the visual purple which sensitises the rods of the retina. The visual purple is only restored in darkness. Children should sleep in the dark. Children with blue eyes are not able to withstand bright glares as well as those with deeply pigmented brown eyes; at birth all children have blue eyes and the development of the brown pigment is a gradual process. The eyes of young children, should therefore be protected from blinding sunshine.

Amongst the conditions which require immediate and urgent medical attention in children are squint and short-sightedness. Squint or strabismus since it prevents both eyes being used simultaneously on the same objective point results in a failure of binocular and stereoscopic

vision. The child uses one eye to the gradual exclusion of the other. The latter eventually undergoes disuse atrophy and becomes blind. The child is reduced to an appreciation of his surroundings little better than that possessed by a rabbit or a babe. Squint involves a serious handicap on man's acquired cortical ability to interpret the meaning of experience by comparison with memories of the binocular stereoscopic feelings and sensations previously enjoyed. Squint involves a definite check in that continuity of experience which is so fundamental in education. Practically all cases of squint in children are amenable to rapid, early and painstaking medical treatment. Squint is one of the most potent causes of a progressive inferiority complex.

Short-sight or Myopia.—In the short-sighted eye either the antero-posterior axis of the eye is too long or, more rarely, the refractive index of the lens is too high. In children under two years of age myopia is rare. The condition usually appears during school age and tends to be progressive during the period of growth. The number of cases increases with the school age, so that both the frequency of cases of myopia and the degree of the myopia increase. The mild cases of myopia respond readily to correction by concave lenses which should be habitually worn, as good distant vision cannot be obtained without them. The severe cases require careful training with avoidance of all excess in close work, such as reading, writing and sewing.

HEARING

The organ of hearing consists essentially of an external ear (auricle and ear-hole), middle ear (drum and ossicles) and internal ear (cochlea). These three parts are essentially sound-collecting, sound-conducting and sound-perceiving. In man the auricle is not as specially developed as that in the lower animals where the cocking of the ears in relation to localization of sound is well marked. The middle ear is bounded on the outer side by the drum (tympanum) and on the inner side it connects with the naso-pharynx by a narrow canal lined by mucous membrane. This narrow canal is the Eustachian tube and it is the path whereby infection spreads from the nose or pharynx to the middle ear. The internal ear or labyrinth consists of an acoustic part concerned with the perception of hearing; this part, the cochlea, conveys auditory stimuli to the parts of the brain which interpret the stimuli. In addition to the cochlea the internal ear also contains the three semicircular canals arranged in three axes at right angles to one another which give to the brain the sense of orientation or position in space. Disease of the cochlea causes deafness. Disease of the semicircular canals causes vertigo (giddiness) and nystagmus (jerky movements of the eyeball).

The growth of the drum, middle ear and internal ear in antenatal life is extremely precocious so that at the sixth month of foetal life these organs are within 10 per cent. of their adult size. This precocity of the apparatus of hearing is accompanied by a relatively late development from the functional point of view of those parts of the cortex of the brain which are peculiarly associated with hearing and speech. The apparatus is laid down early in the development of the individual but the complete functioning of the apparatus is a late feature.

Hearing varies more than vision in children. Most children can hear sound waves extending over 7 octaves (40–4,700 vibrations per second). Some children, like dogs, can appreciate lower notes, others can

appreciate higher notes such as those emitted by the flight of a bat. One of the main features of development in the child is the manner in which he learns to become insensitive to sound stimuli, ranging from the tick of the clock to the " don't do that " of the parent ; in short, the child may become cortically deaf to spoken words as to other sounds. Auditory memory probably displays a greater range of variation in different children than visual memory. It is possible that the recent tendency in the school in favour of " silent " work which is essentially visual is not as efficient in certain cases as the recitation aloud which was formerly practised.

Disease of the middle ear.—The delicate mucous membrane of the deep surface of the drum of the middle ear and of the Eustachian tube is continuous with that of the respiratory tract. Any inflammation of the latter, whether it be due to irritating gases or to an infection such as the common cold or an acute infectious fever, involves by extension inflammation of the Eustachian tube and middle ear. In the baby both on account of the shortness of the neck, the reclining position and the weakness of expiratory effort, as in coughing and sneezing, the back of the nose is not easily cleared of an accumulation of mucus. Furthermore, if an infant is fed in the horizontal position food and drink easily regurgitate above the palate into the nose and may even reach the middle ear by way of the Eustachian tube. Thus inflammatory conditions of the middle ear are most frequent in the youngest, in whom the control of head movements, expiratory effort and spitting are not well developed. They are peculiarly dangerous in children because the excruciating pain of earache does not always appear in the very young when there is severe inflammation in the middle ear, as the various parts of the temporal bone do not become consolidated to form a compact whole until early childhood. Thus instead of pus bursting the drum and so leading to a discharge from the ear as usually happens, pus may make its way to the meninges of the brain or appear under the skin above, behind, below or even in front of the ear. Disease of the middle ear is a killing disease and inflammation of the middle ear is present in 80 per cent. of the infants under 2 years of age who reach autopsy.

Acute inflammation of the middle ear is a common condition as an accompaniment of the ordinary cold. It frequently accompanies acute infections such as measles, scarlet fever, diphtheria and even severe chicken-pox. Chronic inflammation of the middle ear with its discharge (otorrhoea) is too frequently a sequel of the acute fevers mentioned above. In the first place the chronic infection saps the vitality of the body and the progress of the child mentally and physically is handicapped. In the second place the scar tissue formed in the middle ear as a result of the inflammation and the permanent destruction of the drum leads to deafness which is a second handicap. The progress of the child in school, his reaction to his environment at home, and his potential disability in that so many avenues of play, sport and employment are closed to him, are of grave significance. The behaviour of the child and his emotional responses are considerably disturbed. Middle ear disease cannot always be prevented in its acute forms, but there is no justification for the existence of chronic middle ear disease in the presence of active medical treatment. Treatment of chronic middle ear disease not infrequently calls for treatment of associated enlargement of the lymphoid tissue in the mouth (tonsils) and naso-pharynx (adenoids).

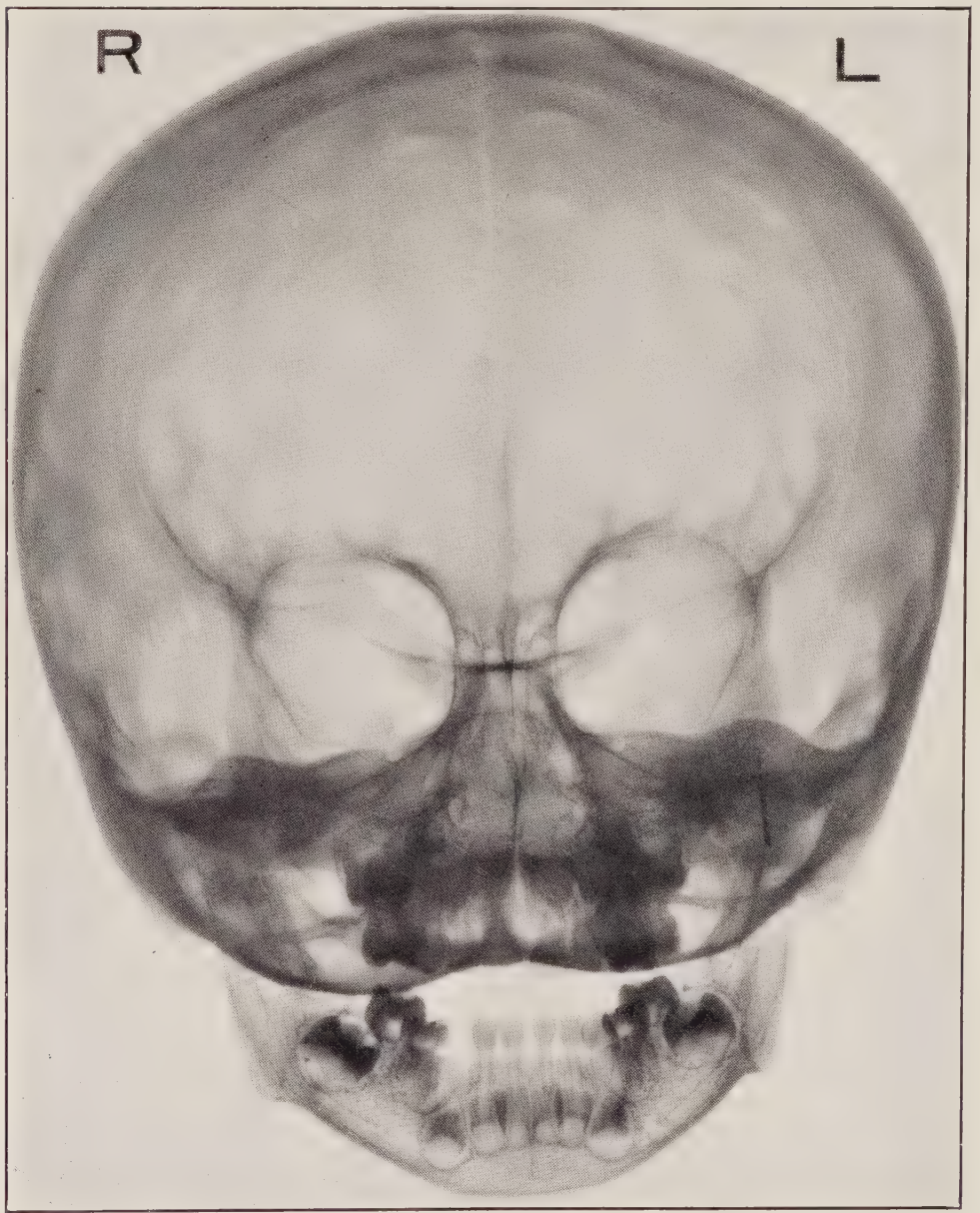


FIG. IV.

Norma frontalis of skull of a boy of five years of age. Note the permanent (unerupted) teeth in the bony substance of the jaw in relation to the erupted milk teeth.

THE BRAIN

The precocity of growth of the nervous system as compared with the skeletal system is well established. The actual rate of growth and differentiation of the various parts of the cerebral cortex still awaits intensive research. The child of seven years of age presents an arrangement of layers of cells and fibres in the *cortex* which cannot be distinguished from that of an adult.

It has been widely accepted that the actual number of nerve cells in the cortex of the brain undergoes no increase after birth. This has become a tenet of many neurologists and psychologists. Aldama (³⁰), among others, has focussed attention on the fact that up to five years of age the various layers of the cortex possess a reserve of agranular cells, some of which may be able to differentiate in order to remedy deficiencies due to disease or injury in cells, which had been differentiated during late embryonic life or early childhood. Those areas of the brain peculiarly associated with late myelinization, prolonged differentiation and functions which even now are not clearly defined, are also the identical areas which display an orderly progress in development from the anthropoid brain to that of ancient and modern man. These areas tend to be related to those overlying sutures of the skull which display late union (Harris) (³¹). These areas, comprising portions of the frontal, parietal and temporal lobes were previously referred to as associational or "silent" areas. They are the very areas which Aldama depicts in his studies as areas which at 5½ years of age are further removed from their definitive adult form than the remaining parts of the cortex*.

DENTITION

Most of those animals which present differences in size, shape and number of roots of the teeth according to differences in situation in the mouth also develop two sets of teeth. The primary deciduous dentition or "milk" set is replaced by a secondary dentition or "permanent" set. Animals differ widely both in the number of teeth in either set and in the time of cutting of the teeth. In some animals, such as the seal, the milk teeth are cut and shed in utero: in others, such as the pup, milk teeth are cut and rapidly replaced by the permanent set. In certain ruminants, such as the horse, milk teeth are retained until the animal is almost of adult size. In man the milk teeth are destined to function until at least 7 years of age and there is a close correlation between the condition of the milk teeth and that of the permanent teeth. On the whole the child who has sound milk teeth will tend to have sound permanent teeth. The child with carious milk teeth requires careful nutrition and dental care to acquire even a moderately well-formed permanent set.

Even during the fourth month of embryonic life the milk teeth of man have commenced to undergo calcification. At birth all twenty unerupted milk teeth are heavily calcified with dense enamel in their crowns. The first permanent molar tooth, which is often referred to as the "six year old" molar, even though it will not erupt until the sixth or seventh year, already possesses before birth a distinctly calcified crown. Hence it follows that the care of the teeth must be undertaken before the child is born. The radiograph (Fig. IV) of a child of five

* See *Report on the Primary School*, page 241.

years shows the manner in which the permanent teeth are housed in the bony jaws before displacement of the deciduous teeth. It is the eruption of the permanent teeth in the sixth and seventh year which leads to that elongation of the face, excavation of pneumatic sinuses such as the maxillary antrum, and the change in physiognomy which characterizes the second "springing-up" stage of growth from 5 to 7 years of age.

The following tables of dentition are given as a rough guide to the average date at which the various teeth of the milk and permanent set are cut:

Eruption of Teeth

Temporary or Milk Teeth—20 in number

7th month.	8th month.	9th month.	10th-12th month.	14th month.	17th month.	24th month.
Lower central incisors.	Upper central incisors. Upper lateral incisors.	—	Lower lateral incisors.	1st or anterior temporary molars.	Canines.	Posterior temporary molars.

Permanent Teeth—32 in number

6th-7th year.	8th year.	9th year.	10th year.	11th-13th year.	11th-13th year.	12th-14th year.	18th-30th year.
1st molars.	Central incisors.	Lateral incisors.	Anterior bicuspids.	Canines.	Posterior bicuspids.	2nd molars.	3rd molars (wisdom).

In comparison with the precocity of growth of the brain, it should be noted that the growth of the face and the eruption of the third permanent molar or "wisdom" tooth are not complete until approximately 21 years of age. Any faulty development of the permanent dentition is apt to be associated with irregularities in the development of the jaws, palate, and pneumatic sinuses in relation to the respiratory pathway in the nose and pharynx.

The Teeth in Young Children.—In this country no organ or tissue of the human body is so frequently affected by disease as are the teeth. A child of school age without some evidence of dental caries, past or present, is unfortunately almost a curiosity.

There is general agreement that dental caries is produced by the acid fermentation of carbohydrate food in the mouth. The acid thus formed acts as a solvent on the enamel of the tooth, and when this has been penetrated, further solvent action is re-inforced by the action of certain bacteria found in the mouth, which have the power to attack and produce disintegration of the organic content of the dentine.

For many years the view was generally held that liability to caries and the rate at which the carious process progressed were comparatively uninfluenced by variations in the structure of the teeth. In other words, a poorly calcified tooth was believed to be little more susceptible to caries than one which was well formed. Mainly for this reason, therefore, comparatively little research was directed towards elucidating the factors responsible for determining the structure of the teeth. Investigators of the problem of caries concentrated largely on what might be called the environment of the teeth, and their work was directed towards such questions as the physical and chemical characters of a satisfactory diet, the composition and functions of saliva, and so

on. The work of Dr. Sim Wallace in this connection is well known, and his advocacy of a diet which would tend to secure that fermentable carbohydrates do not remain in the mouth at the end of a meal has been of great value. It is agreed by most dentists that the systematic use of a toothbrush, useful though it may be in helping to remove these fermentable substances, cannot be relied upon to prevent caries entirely, and that its effect is inferior to that produced by a diet such as Dr. Sim Wallace (³²) advocates.

There is no doubt whatever that our modern methods of cooking and preparation of food result in our teeth and jaws having much less work to do than Nature intended. It is common experience that any organ of the body which is not given a proper amount of work to do tends to degenerate or atrophy. While the structure of the teeth is such that they cannot be subject to the same kind of atrophy or wasting as that which affects, say, an unused muscle, still Nature penalises those who do not use their teeth as they were intended to be used, and if, partly through inefficient mastication, fermentable foodstuffs are left adhering to the teeth after meals, it is not surprising that caries so often results.

It has already been noted that for many years the structure of the teeth received comparatively little attention, but this is not true of the post-war years. The development of this recent research is of interest. In the later stages of, and immediately after, the Great War, it was observed that rickets was remarkably prevalent in some European countries, and investigations eventually proved that this condition was due to the comparative lack of vitamin D in the food of the children affected. In this work Professor Mellanby (³³) of Sheffield was a pioneer.

The principal natural source of vitamin D is animal fats, for example, butter and cod liver oil. As fats are a relatively expensive form of food, the children in countries such as Austria were, in many cases, unable to obtain these foods in anything like adequate quantities. This essential vitamin is also formed in the body under the influence of the ultra-violet rays of sunlight—whether derived from natural or artificial sources.

The disease known as rickets or rachitis is characterised by defective calcification of the bones. It appears that, without an adequate supply of vitamin D the body cannot properly utilise the calcium which is ingested in food, and the structure of the growing bones is, therefore, seriously affected.

The fact that bones and teeth, while differing in many respects, are both calcified structures, suggested that bone calcification and tooth calcification might be subject to the same influences, and this point was taken up by Mrs. Mellanby (³⁴), who has worked on the various aspects of the subject for the past decade or so. By feeding experiments on puppies, she showed that vitamin D has a remarkable effect on the structure of the developing teeth in these animals, and that it is possible to produce at will well-formed teeth or the reverse, according to whether or not an adequate supply of vitamin D in the diet is secured. More recently she has shown that cereals tend to have the opposite effect in puppies, that is, that they have anti-calcifying properties. Her work, however, would probably not have aroused widespread interest in the absence of evidence that the variations in structure thus produced had some effect on the susceptibility of the teeth to caries.

The view held formerly that there was little relationship between the two conditions was based to some extent on the belief that whereas dental caries in human beings in this country was widespread, defective dental structure was somewhat exceptional. Mrs. Mellanby, however, showed that defective structure is much more common than had been supposed, and that there is a positive correlation between defective structure and caries in human teeth. (Owing to the fact that dental caries is not a canine disease, such a correlation could not be observed in dogs.)

It then remained to be seen whether the controlled administration of vitamin D to children would have the effect of reducing the incidence either of defective structure or of caries. Such work as has already been done by Mrs. Mellanby and her collaborators on this subject has yielded suggestive results. In her experiments there was observed a notable reduction in the incidence of caries amongst children receiving a regular supply of vitamin D as compared with that found in the children acting as controls. Caries, however, was not abolished and it is, therefore, impossible to say more at present than that there is evidence that the administration of vitamin D appears to increase the resistance of human teeth to dental caries.

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APPENDIX III

THE EMOTIONAL DEVELOPMENT OF CHILDREN UP TO THE AGE OF SEVEN PLUS

Note.—The following paragraphs dealing with the emotional development of young children at successive stages up to the age of seven are taken from a Memorandum prepared for the Committee by Professor Cyril Burt, D.Sc., Professor of Psychology, University College, London, and Mrs. Susan Isaacs, D.Sc., Head of the Department of Child Development, The Institute of Education, University of London, and Research Assistant in the Psychological Laboratory, University College, London. The remaining part of the Memorandum, which is not printed here, is the basis of Chapter III of the present Report.

1. Of all the general features that mark the behaviour of the child during the first two or three years of life the most obvious and the most significant is the great strength of feelings and impulses as compared with the weakness of understanding and the power of control. Only gradually does the ordered world of physical objects and social realities come before the child's comprehension. For long he remains a creature of imperious wishes and intense emotions.

2. Experimental research has recently thrown much light on the nature and growth of the young child's instincts and emotions. Watson's work on fear and rage in infants, for example, seems at first sight to establish a suggestive fact, namely, that these feelings can be automatically called out by relatively simple and definite stimuli; fear, by the sudden loosening or lowering of the child's physical support or by a sudden loud noise; rage, by the forcible inhibition of the infant's movements. Subsequent work, however, has somewhat modified this view, and made it appear too simple. Valentine's studies have shown that the infant's responses are never quite so mechanical as Watson's descriptions have implied. After the very earliest days, it is always the total situation to which the child responds, rather than the single simple stimulus. The presence or absence of the mother, for instance, may entirely determine whether or not the child will respond to a particular stimulus with symptoms of fear or dismay. A more recent investigator has studied sleeping habits of children aged two to four; and has similarly demonstrated that during the day time the length of sleep and the readiness with which children fall asleep is largely affected by their personal response to the particular adult in charge. There is little doubt that the same also holds good, though perhaps not quite so strongly, of the younger child.

Nevertheless, Watson's observations of the special kinds of stimuli most liable to produce fear in the young infant, and his demonstration that one of the most certain ways of provoking rage is to inhibit the child's movements, whether by rough handling or by tight garments, still remain unquestioned, and are highly significant for education.

One instructive study has lately been made by Washburn of the smiling and laughing of infants during the first year. It has been shown that there are definite phases in the development of both responses.

From the eighth to twentieth week, the infant will respond with a smile to another's smiling ; but from the twentieth to fortieth week, negative responses predominate, probably because the child is then becoming more aware of strangers as such. After the fortieth week the smile can again readily be called out. Laughing appears later than smiling. It is more stereotyped in its pattern, and seems more closely connected with the primitive emotions and the expression of feeling generally ; smiling, on the other hand, has the character of a communicative, adaptive response, and thus marks the beginning of a social reaction.

At birth and throughout the first two or three years the child's emotional life centres chiefly in the nutritive impulses of his body. His first affection for his mother, and his first feelings of loss or thwarting, are experienced in connection with the way she nurses and feeds him. It is through the same fundamental relations that he gleans his first knowledge of her as a person. He learns to know his mother through his mother's breast. Later, when she begins to train his excretory functions in accordance with social standards, his emotions of love or of fear and anger become closely coupled with these experiences as well.⁽¹⁾

To treat the training either of the feeding responses or of the excretory habits as a problem of purely physiological and local mechanism is a serious educational mistake. By his behaviour in regard to these functions the child manages to express either his trust and love or his anger and defiance ; and such feelings are readily stimulated by the way in which he is handled during these recurring situations, quite as much as by his general relation towards the adults who have charge of him.

From the point of view of mental hygiene, therefore, it is of great importance that a sound technique in managing the infant while serving his physiological needs and training his excretory habits, should be acquired by those who attend to his needs. Regularity in the times for feeding and in the opportunities for voiding are essential ; equally important are a gentle mode of holding him and a calm and confident manner. Quiet, positive encouragement, showing the child what to do and how to do it, is far more effective than scolding or punishment, or emphasis on what he should not do. Successes should be emphasized ; failures should be minimized ; and above all, any feeling of shame or hostility should be avoided.

It is equally essential for mental health in later childhood that the process of weaning should be properly accomplished. There is reason to believe that a normal period of breast-feeding is as important for mental as for bodily health, that too early a weaning is to be avoided, and that the change over from breast to bottle or spoon should be graduated according to the special emotional requirements of each individual child.

The normal time for weaning falls in the third quarter of the first year. Just before this period there is a significant change in the instinctive responses of the child. Together with the first appearance

(¹) The close association between the emotional life and the alimentary processes has been demonstrated by such work as Cannon's on *Bodily Changes and Pain, Hunger, Fear and Rage*, as well as by direct observation of those situations which call out emotional responses in the infant and young child.

of the teeth, there appears a marked inclination towards biting. This change may bring with it a general alteration in the child's whole emotional attitude; in particular there often is a marked increase in the destructive impulses. With the ordinary well-cared-for infant such impulses find a harmless satisfaction in biting food, bone rings, and the like, and, later on, in destructive and constructive play with bricks or sand. Thus exercised, they cause but little trouble. If, however, during the early months the child suffers some undue thwarting in regard to the routine of feeding, then the biting impulses may be greatly heightened and become a vehicle of rage and defiance. Later difficulties over excessive destructiveness in the nursery school period may often be traced to unsatisfactory conditions during the weaning period. These are but a few of the observable facts which illustrate the great psychological importance of a proper handling of emotional situations such as arise out of the nutritive processes during the first year of life.

The second year sees a considerable increase in the variety and vividness of emotion. Difficulties may now arise even in children who, throughout their first year, have been comparatively placid. A recent investigation into anger in children has shown that the frequency of outbursts of anger, no matter what their cause, rises to a definite peak during the second twelve months. During this period, a number—perhaps the majority—of children go through a phase of obstinate self-assertion, stubbornly resisting almost every demand which adults make upon them. It would seem as if now, for the first time, the child discovers himself as an independent person, and so needs to affirm himself defiantly and wilfully against his environment. Only in this way can he begin to learn in which directions he is allowed to be independent and self-determining, and in which directions it is more satisfying in the long run to acquiesce. A brief spell of perversity is normal; but the tendency may persist unduly in those who are severely punished or who feel thwarted by the absence of any opportunity for self-determination and self-help.

During this second year the common phobias of childhood, including night-terrors, may make their first appearance. In a few they may give ground for anxiety; but as a rule, with calm and sensible treatment, they die gradually away.

Difficulties in regard to feeding now take the form of idiosyncrasies of taste, of reluctance to chew or swallow solid food, or of a general moodiness with regard to food. If there is no ill-timed attempt to ride rough-shod over the child's preferences, no excessive fuss on the part of the adults when he is disinclined to eat, the trouble may vanish spontaneously by the end of the second year.

Another characteristic of this period is thumb sucking; but again it soon loses its attraction when the child's skill and interest in the external world find scope for development.

All through these first two years what is most distinctive in the child's emotional attitude is his intense attachment to his parents. Other children interest him, but are often treated as merely rivals. Indeed, rivalry with playmates over the sharing of toys or over the attention of grown-ups may be very acute. But in the main it is mostly to adults that the child looks for his emotional satisfactions.

3. Observers who have approached the study of the young child from many different angles are all agreed upon one outstanding point:

namely, that the emotional intensity of the young child's life reaches its zenith about the end of the third year. At this age, every emotion the child undergoes is felt with a vividness and a strength that is never again experienced either in later childhood or in adult life; from this stage onwards experience and the integration of impulses tend more and more to control and moderate the child's emotional excitement. This early vividness and intensity are seen with every type of feeling. The child's rage at being thwarted, his fears, his phobias, his night-terrors, his love and devotion towards mother or nurse, his sense of loss if they leave him, his jealousy and feelings of jealousy towards other children, all are violently felt and vigorously displayed. In its quick changes and warm and shifting colours, his emotional life is kaleidoscopic. From laughter to tears, from affection to hostility and back again, is but a momentary step. What the child cannot do as yet is to organize his conflicting impulses into restrained, stable, consistent behaviour.

In the home, all these feelings with their varied content are shown with a demonstrativeness that is undiluted. In the nursery school they never appear so fully or so vividly: there the presence of a greater number of persons leads to a wider diffusion of feeling; and further, the child's emotions are naturally less keen and acute towards other adults than towards his own mother or nurse. Nevertheless, even in the nursery school the tiny child of three is very ready to show rivalry with other children, and evinces a perpetual desire to cling to grown-ups for shelter or attention. By the middle of his fourth year, however, his close attachment to adults and his jealous suspicion of other youngsters grow less and less marked: a more positive and active interest in play-fellows appears and become progressively established.

The control of emotional impulses is due mainly to the formation of what the psychologist terms sentiments. Groups of emotions become associated and organized about central ideas. These ideas are, to begin with, ideas of persons—almost invariably those whom the child meets daily in his own home circle; later they may be ideas of concrete but inanimate things, such as the child's own property or playthings; later still, and for the most part after the period with which we are here concerned, they may relate to more abstract conceptions and form the centre of an enthusiasm for certain games, for particular school subjects, for particular modes of conduct, for ideals of virtue and the like.

In popular conversation, we speak of these sentiments as the "love for" this or that object; and we say how important an influence is exercised on conduct by this child's love for his mother or another, by that child's love for her pretty clothes. Affection for a doll, respect for a teacher, family pride, attachment to the old home, loyalty to a school, a passion for reading, a liking for ball games, self-love or self-respect—these are all sentiments; and the germs of them may be successively sown during the years that elapse from birth to six or seven, or later. Some sentiments, as we shall see in a moment, may be sentiments not of love but of hate; most early sentiments are mixtures of both. Unfortunately, common language has no convenient general term: the technical use of the word "sentiment" strikes the non-psychological as a little forced. perhaps the best simple word would be "interests." It is, then, the development of rich and permanent interests that is the chief agent in stabilizing the child's emotions and rendering his conduct more coherent.

Of these interests or sentiments the earliest, as a rule, is the child's sentiment for his mother (or for the nurse who takes his mother's place). Its formation starts in the first few weeks of babyhood. At the outset his interest in his mother is primarily an interest in the source of food and of comfort ; but soon he begins to " love " her in the more ordinary sense of the word. This means not merely that he will experience a passing emotion of affection whenever she is present to his eyes ; it implies that he gradually builds up a permanent disposition to feel a whole cycle of various emotions according to the changing circumstances. When his mother is happy, he feels happy too ; if she suffers, he feels sorrow ; if he fancies she is in danger, he begins to feel fear ; if someone ill-treats her, he grows angry ; if she neglects him for her husband or for a younger child, he grows jealous. Thus a complete system of feelings—joy, sorrow, fear, anger, affection, and the like—becomes attached to the thought of his mother. Such an organized sentiment tends to regulate his passing impulses and feelings in a more consistent fashion.

Sometimes, however, the emotions aroused by one and the same person may come into conflict. While his mother nursed and protected him, the emotions she aroused were mainly pleasurable. So soon as he has learnt to walk and to show some degree of independence, his mother may find it necessary to thwart or restrain his actions, and this may arouse a feeling of anger or of fear : the germ of hate thus appears. The word " hate " may seem a strong one to use in this connection ; but it is scarcely too strong if we consider, not the overt manifestations, but the half-unconscious tendencies to which such feelings give rise. Usually these more unpleasant emotions get repressed, and so remain more or less unconscious. And in this way the sentiment comes to resemble what the psycho-analyst has taught us to call a " complex." Hence, in the organization of the child's feelings there may be dangers as well as benefits. It is often within his own home that he first learns to hate as well as to love. But whatever form they take, his early emotional attitudes towards the members of his family will largely determine his later emotional attitudes to other persons whom he meets in after-life. It is, therefore, supremely important that the way in which the child's own parents treat him should be sane, scientific and consistent. The process can be traced step by step. The habitual response of the child to his parents will affect his reactions towards the adults whom he meets in the nursery school, and their treatment in turn will influence him afresh for the rest of his days. His feelings towards his own brothers and sisters will affect his feelings towards his playmates when he meets them outside his own home ; and once more his new experiences in school will correct or confirm the habits started already.

Of all these sentiments the most important, the master-passion, is the child's own sentiment for himself. From the attitude and utterances of other people, from the way they react to his everyday behaviour, he gradually builds up a notion of himself as a distinct and interesting personality of a particular sort. This notion may develop into a kind of ideal which he may endeavour to live up to or live down to. The emotions attached to it may be selfish emotions or purer and more enlightened emotions. Accordingly, the way the child is praised or punished, allowed to gain confidence and a sense of self-reliant independence, or crushed into timidity and diffidence, or, it may be,

allowed to regard himself as the domineering centre around which the whole household revolves—these early forms of treatment and the very names or nicknames he is given may produce a lasting and ineradicable effect upon his moral character. Accordingly, where the parents' attitude is unwise, or where the relations between the two parents are themselves strained, unhappy, or excessively emotional, there the more orderly environment of the nursery school, with calm dispassionate treatment, may save the child from the permanent ill-effects of an unwholesome environment at home.⁽¹⁾

There is both room and need for first-hand investigations into these processes. A few have already been attempted. Professor Katherine Bridges has made a detailed study of the way in which a young child's emotional attitude towards other children alters,⁽²⁾ and is influenced by successive changes in his development and surroundings. At three or earlier the first response of the child to other children is commonly one of suspicion and dislike. This gradually gives way to a kind of experimental hostility, in which the child shows his interest by behaviour more or less aggressive. Where there are opportunities for co-operative play, this aggressive stage is succeeded in its turn by an active pleasure in doing things together with the other youngsters. At first the opportunities will not be fully seized and the play will not be genuinely co-operative play. The children play happily in the presence of each other; yet, before the age of four and a half, they still tend, on the whole, to play individually. Each follows his own pursuits; and, if he tries to get others to join in, it is usually in an attempt to make them follow his particular notions. Spontaneous groups formed among children at this period are nearly always small; generally they consist of two or three, hardly ever of more than four. Whenever half a dozen or so are present, they quickly break up into small and separate groups. Limited and occasional as it is, however, such playing-together provides the ground out of which the social impulses gradually begin to spring up. The children gain an actual experience of "togetherness"; and the foundation is thus laid for true social reciprocity in later group life.

In these spontaneous groupings one significant feature is the way in which rivalry flashes out between the smaller groups, whether in make-believe or in earnest, much as it formerly flashed out between individuals, though now in milder form. The child's initial hostility to all other children but himself is dealt with first in this fashion; it is as it were pushed further outwards, away from his immediate friends in his own special group, and on to other groups in his neighbourhood. In these early years, however, such groupings are always unstable and temporary: at any moment, through the outbreak of quarrels or petty disputes, they are liable to break down. The leadership of an adult who understands how to direct children's activities will sustain a genuine group-feeling far more durably and far more stably than the children left to themselves.

The hostility that so constantly obtains among the tinier children springs from various sources. A squabble may arise over the possession or the use of some toy or apparatus, over the leadership of the group, the choice of the game or the fashion in which it is to be played, and

⁽¹⁾ See Flügel, *Psycho-Analytic Study of the Family*.

⁽²⁾ K. M. Bridges, *The Social and Emotional Development of the Pre-School Child*.

most significant of all, out of a sharp competition for the friendship and attention of other children. Sometimes it will spring from no cause in the outer environment, but rather from the momentary peevishness or unhappiness of one child who for some internal reason is moody or ill-humoured. Much of this early antagonism and aggression tends to fade away as the children in a particular group gain the experience of playing together, building up a common history, and learning to trust each other. As each child achieves an increasing skill, he becomes better able to co-operate with his fellows.

Towards the close of this period, therefore, the amount of sustained friendly play and genuine co-operation amongst children, though still restricted, is much greater than was possible during the preceding years. As a result, by the end of his fifth year, the child has become more stable in his private emotional life; this in turn reacts on his dealings with others. His social relations with the rest of his group thus grow more and more settled and reliable. Further, these active friendships with other children serve to detach him from his exclusive dependence on adults, and so usher in the initial stages of that gradual change which culminates in the typical attitude of the older child of nine or ten. Characteristically enough, during the years that intervene children are much more concerned with, and much more affected by, the opinion and feelings of other children like themselves, than they are by the approval or disapproval of adults.

4. Between the child under five and the child of six or seven no difference is perhaps so striking as the difference in general emotional attitude. In its essence, the change is a continuation of what has been going forward ever since the period of most intense emotional conflict—the age of three or thereabouts. But the cumulative effect of the intervening processes produces a distinct re-orientation of the child's mind, gradual but complete. The new standpoint is now slowly consolidated and fixed; and, as he passes from one stage to the other, the child's whole outlook expands and his insight grows deeper as well as broader.

The most conspicuous feature is his increasing detachment from his parent. More and more the child turns away from his father, mother, and, indeed, from adults generally, and looks rather for his chief emotional satisfactions to the outside world—most of all to other children. By slow degrees he ceases to regard other youngsters simply as rivals for the love and attention of grown-ups, and comes to treat them as allies. Feeling as he does his own insufficiency against the prestige and the authority of the adult, this sense of comradeship comes as a great support to him: it enables him to look on adults with a more open and discerning eye, and so behave towards them in a more temperate fashion and with greater self-control.

The new alliance with other children thus gradually builds up a new reserve. During the infant school period the child grows far less demonstrative. His parents or his teachers may even complain that they are losing his confidence. Actually the change implies a definite progress in emotional stability. The quickly shifting moods of love and hostility, of jealousy and friendship, so characteristic of the youngster up to the age of five, give way to attitudes more lasting in quality and quieter in tone. Three influences contribute to lessen the intensity of his feelings. First, his circle of acquaintances among both children and

adults grows wider and wider. And with this goes an increase in the variety of contacts that he makes not only with persons but also with things and with ideas—an expansion which now becomes possible through the enlargement of his own skill and interests. Secondly, both in the spontaneous associations of free play and in the regularized competitions or organized games, his feelings of hostility and rivalry are now turned outwards—away from his own immediate playmates to other children or towards other groups. He thus becomes capable of active friendship, and can participate on equal terms in the pursuits of others. Thirdly, emerging out of the two previous influences, there is an increasing organization in the child's social relations. His behaviour, both towards young and old, no longer rests on the impulse of the moment; it is based on a scheme of attitudes, which fit more and more closely to the special requirements of time, place, and person. Something like a moral code is beginning to grow up.

Recent studies of the moral development of young children have revealed an important change. In the earlier years children's moral judgments and their notions of just punishment are far more severe and absolute than later on. Before the age of five or six the whole pattern of their emotional and social life is founded on the relation of parent and child, of authority and obedience (or disobedience). Towards six or seven years, however, a morality of equals begins gradually to develop; and, little by little, the virtues of loyalty, friendship and tolerance gain meaning for the child. His moral values as a whole grow more tempered and balanced, and show a closer connection with his real experience. They will, of course, still be entirely concrete and immediate; as yet all abstract moral judgments are beyond the range of his comprehension.

APPENDIX IV

SHORT DESCRIPTIONS BY SUPERINTENDENTS, HEAD TEACHERS AND OTHERS OF TYPICAL NURSERY SCHOOLS; NURSERY CLASSES; BABY CLASSES

(A) NURSERY SCHOOLS

Bradford, Princeville Council Nursery School.

London, Deptford, The Rachel McMillan Council Nursery School.

London, Notting Hill Voluntary Nursery School.

Manchester, Collyhurst Voluntary Nursery School.

Sheffield, Denby Street Council Nursery School.

(B) NURSERY CLASSES FOR CHILDREN BELOW THE AGE OF 5 IN INFANT SCHOOLS AT LEICESTER AND MANCHESTER

(C) SHORT DESCRIPTIONS OF THE CLASSES FOR CHILDREN BELOW THE AGE OF 5 BY THE HEAD TEACHERS OF SIX INFANT SCHOOLS OF DIFFERENT TYPES

The Class for children between the ages of 3 and 4 in a Council School for Infants in a large Midland town.

The Section for children aged 4 years in a Council School for Infants in a Midland town.

The Classes for children below the age of 5 in a Council School for Infants in a large industrial town in the North.

The Class for children below the age of 5 in a Council School for Infants in a town on the South Coast.

The Group for children below the age of 5 in a small Non-Provided rural school in the South of England.

The Group for children below the age of 5 in a small rural Council School for Infants in one of the Southern Counties.

(A) NURSERY SCHOOLS

BRADFORD, PRINCEVILLE NURSERY SCHOOL

This school was opened by the local education authority in 1920 as a detached nursery school on "open air" lines. In 1930 the nursery school was amalgamated with the infant department (after special structural alterations had been made) in order to carry on the nursery school tradition through the infant department under one head teacher. The nursery school accommodates 104 children, and the infant department 200. The nursery school or section consists of three classrooms which can be completely opened on one side to admit the fresh air, and are shaded by a glass verandah. There is an ample playground, partly paved, and partly laid out in grass with flower beds. The reception room is large and well lighted and permits of complete scrutiny to detect cases of infectious disease. Shower baths and small water closets are provided. In the cloakroom each child has its own peg, together with a face cloth, comb and towel.

The school forms a combined nursery and infant department, and the connection between the two branches is close, both in organisation and in educational activity.

Meals.—All children in the nursery section stay to dinner. The parents pay 2s. per week (or 3s. 6d. for two children in the same family) ; this includes mid-day dinner, milk and fruit. In cases of need, the fees are reduced or wholly remitted.

At the age of five, the children technically belong to the infant section. They may, however, continue to have the full diet provided in the nursery section on payment of the same fee. Almost all the children who have been in the nursery section do this. The same arrangement is open to children entering the school at the age of five, but a number of parents do not wish their children to have the full nursery diet. The following choice is allowed them :—

- (i) 3½d. per day for dinner alone.
- (ii) 3½d. per day for dinner and 1d. for milk.
- (iii) 1d. for milk (no dinner).

Each teacher is responsible for making the necessary arrangements and for collecting the payments from the children in her class.

Educational Activity.—The children are grouped according to age, though there is no rigidity. Children of different ages frequently play together and a child may join in the activities of a different age-group if he wishes. In general, however, children about the same age like to be together and to use the apparatus provided for them. The activities of the various groups are planned as follows :—

Two-year old group.—These have large apparatus, rag books and toys, e.g. woolly animals and big bricks. They delight in playing on the “jungle gym” and the chute, and apart from learning to wash and dress themselves, they spend most of the time in free play. All these activities help them to control their bodies.

Three-year old group.—The apparatus is somewhat more complicated than that for children of the age of two. It includes sense-training apparatus (for colour and shape) which also helps in finger-manipulation. Picture books are provided instead of rag-books, and the children learn to take care of them.

The activities are more ordered, though not formal. They include, for instance, gardening and the arrangement of flowers. Sometimes the children will plan a washing day or some other domestic occupation with which they are familiar.

Four and five-year old group. (“*The transition class.*”)—This group forms the transition between the nursery and infant sections, and in order that there may be no line of demarcation between them, the activities are very diverse. Much free choice is allowed and the domestic activities of the preceding group are continued. The children regularly clean the bathroom, and wash their own furniture.

The toys and apparatus provided are related to those supplied for the group of children of the age of three, but as the children develop, they are given occupations involving simple number. Paper-cutting, clay-work, etc., with the calculations required, lay the foundations for more formal work. Later in the year, apparatus boxes are provided for each child, containing simple number and reading apparatus. During the summer term, the children over

five are given some definite instruction in the elements of reading, number and printing. After this, the children pass into the infant section proper. Although the work is necessarily more ordered and some class instruction is given, nursery methods and regime are to a large extent continued in the infant section. The children are left as free as possible and much of the work is on individual lines.

Throughout the whole school, great stress is laid on art and music, primarily as creative forms of activity and as means of self-expression. From the earliest age, children are given paints and large sheets of paper as well as blackboards and chalks. Music includes eurhythmics and a percussion band for all, as well as singing. Language training is fundamental. It is given incidentally throughout the day and children are encouraged from the first to talk freely and to ask questions. It is also given in the poems, stories, and the very simple dramatisation which are included in the work of the school.

The head teacher has prepared schemes for the co-ordinated work of the whole school, and all the staff in course of time will have taken classes or groups in both sections. This is a matter of great importance, as the idea informing the whole work and activity of the school is the unity of a child's development between the ages of two and seven.

All the staff take part too in the mothers' club which holds weekly meetings in the evening. About 60 or 70 women are usually present.

LONDON, DEPTFORD, RACHEL McMILLAN NURSERY SCHOOL

The Rachel McMillan Nursery School which is now the largest nursery school in England was started in 1911 as a small voluntary enterprise in the garden of Evelyn House, Deptford, where the premises were lent rent free to form a night camp for children over eight years of age while little children were received in the day time. This was the nucleus of the nursery school. In 1914 the "camp" was moved to a shelter on the Stowage site. This site had originally been acquired by the London County Council for a new elementary school, but there had been a decrease in the child population of the district and they had agreed to allow Miss Margaret McMillan the temporary use of the site at a nominal rent.

The "camp" was used during the war by the children of munition workers and a Government grant of 7*d.* a day was paid to Miss McMillan for each child. The crèche for the munition workers' children was in reality an open-air nursery school.

In 1917 Mr. H. A. L. Fisher, the President of the Board of Education, opened new buildings erected on the Stowage site.

In 1919 the Council entered into an agreement with Miss McMillan giving her the use of the Stowage site for five years, with the proviso that then, or at her death if it occurred before, the site and the buildings she had erected should pass to the Council. In 1924 and subsequent years this agreement was renewed. The nursery school was recognized by the Board of Education in 1919 and grant by the Council was first paid in 1920. In 1921 H.M. Queen Mary opened new buildings erected by the Council, with accommodation for 100 children, on another part of the site. From then until Miss McMillan's death in 1931 the school

consisted of two parts, one maintained by the Council and the other, which had been provided by Miss McMillan, aided by grant from the Council. These two parts were conducted as one organisation under one superintendent.

In 1924 Miss McMillan provided additional places in premises (since demolished) in Wellington Street, and in 1927 a new shelter was built by her on the Stowage site. The accommodation of the school had then become 260 places, i.e., 160 in the voluntary part and 100 places in the Council's part.

In 1931, on Miss McMillan's death, all the premises of the voluntary school passed to the Council under the agreement previously referred to and the School has been wholly maintained by the Council since then.

In 1932 the temporary premises in Wellington Street were required for the purposes of a housing scheme and a new shelter was built on the Stowage site. The total accommodation of the school, 260 places, remained unchanged.

The school is of the "village type" consisting of six open air shelters standing in a large garden. The shelters are self-contained, having separate cloakrooms, bathrooms and sanitation; each shelter accommodates 35 to 50 children. The garden is specially designed to meet the needs of young children. It makes an attractive playground with its slide, "jungle gym," and its little paths and steps to tempt adventurous toddlers. There is an aviary and a dove cot. Rabbits and guinea-pigs are kept as pets and the children greatly enjoy feeding them.

The school is staffed by qualified teachers with special nursery school experience, aided by students from the adjoining nursery school training college, who gain useful insight into nursery school management whilst giving service which enables the nursery school to be conducted at a reasonably low cost.

The nursery school opens at 7.30 a.m. to admit special cases and most of the children arrive between 8 a.m. and 9 a.m. They make their way to their own shelters with a mother or an elder sister who has brought them, and after greeting their teacher go straight to the bathroom for their morning toilet. Breakfast is served at 9 o'clock. The morning is spent in handwork occupations or in play either in the garden or in the shelter if weather is inclement. Between 11.30 a.m. and 12 noon the children sit down to a two course dinner, after which they are ready for their midday sleep. The afternoon's activities consist of free play, music and games. Tea is served at 4 o'clock and between 5 and 5.30 p.m. the parents arrive to take their children home.

A weekly charge of 1s. 8d. is made to those parents who can afford to pay this sum. This covers the cost of the raw food. Necessitous cases are carefully considered and reductions are made to meet the needs of individual parents.

The School is visited once a week by one of the London County Council doctors, and a Council nurse attends daily for an hour. The treatment recommended by the doctor is carried out at the Margaret McMillan Treatment Centre, Reginald Square, Deptford. Breathing exercises, massage and sunlight treatment are given where necessary. The physical condition of the children rapidly improves under favourable hygienic surroundings.

One of the nursery school shelters is reserved for delicate children who require special treatment and diet.⁽¹⁾

There is a flourishing mothers' club in connexion with the school. This club meets weekly and is of inestimable value as a link between home and school.

Adjoining the nursery school is the Rachael McMillan Training College where 100 students are now in resident training for nursery school teachers. Their work brings them into close touch with the social problems of the day and they have ample opportunities of observing the physical and mental development of the children in the school.

LONDON, NOTTING HILL VOLUNTARY NURSERY SCHOOL

This is one of the pioneer nursery schools conducted by a committee in connexion with the Froebel Educational Institute. It was established in 1908 as the Michaelis Free Kindergarten, but changed its name to the Notting Hill Nursery School in 1915. The premises, which accommodate 80 children, consist of a three-storied house with a garden at the back. The staff consists of the Superintendent, a trained assistant, two uncertificated assistants, a probationer, and voluntary helpers. An open-air shelter for children who are specially delicate has been erected in the garden, and proves of much value. A midday dinner is provided at a charge of 1s. 3d. per week, but where parents are unable to afford this sum the dinners are provided free of charge for limited periods.

An attempt was made to trace the subsequent school careers of all the children who had left the Notting Hill Nursery School within the last five years. It was found that they had all held their own in school studies and pursuits. The educational tests that were given them indicated that they were at least up to the average in their school work. Although they entered the elementary school at the age of five with no formal knowledge of reading and number, they soon overtook those children who had had an earlier training in these subjects. The verdict of the teachers concerned was that the nursery school children were alert and eager to learn, and that they were well behaved and equipped with habits which made for progress and happiness in the school.

One of the special features of the school is a well arranged course of instruction in the care of young children for pupils from the senior class of a neighbouring public elementary school for girls. The girls attend the nursery school for one morning a week during the last three terms of their school life. They spend their time in giving one month in assisting with children between the ages of two and three; one month with those aged three to four years, and one month in the shelter for specially delicate children. A weekly lecture of half an hour is given by the superintendent of the nursery school on various points in nursery school training. The girls keep a diary of the work done, and are given a written test at the end of the term. They have practice in supervision of the hygiene of children, bathing, handkerchief drill, etc., and are

⁽¹⁾ The extension of Nursery School methods and environment to children above the age of five is the subject of an interesting experiment now being made at Deptford. The Margaret McMillan "Camp School" is designed to retain delicate children until the age of seven or even eleven years, when they will be drafted to appropriate schools. The school is not eligible for grant. It has accommodation for 100 children.

present at the daily examination of the children by the school nurse, when they learn to recognise the obvious symptoms of incipient disease. Special attention is given to the diet of young children. Visits are paid to the nursery school kitchen, and lessons are given on the choice of dinners and the cost of food. The housewifery scheme of the girls' school is correlated to include instruction in suitable patterns of clothing, and clothes are made in school for the nursery school children. During the period at the nursery school girls are afforded opportunities for practice in playing games with the children, in telling them stories, and in making simple apparatus.

MANCHESTER, COLLYHURST NURSERY SCHOOL

This school is conducted as one of the activities of the Collyhurst Guild of Social Service. Two army huts were purchased at a cost of £60 each and set up on a plot of land adjoining the recreation rooms of the Guild. A verandah and wide concrete path were added, with space for stretcher beds. The aspect is sunny and the school provides an inexpensive shelter on open air lines. There are two large nursery classrooms with french windows, affording accommodation for 45 children in all. The staff room is used for massage three times weekly, and also as a room for observing cases where illness is suspected. The rest of the premises include a lavatory room with movable basins, small water-closets, and a cloakroom filled with pegs, small seats and boot racks for each child. Little chairs, tables, and stretcher beds are provided, and one of the nursery classrooms has blackboard material round the walls. There is a sand pit in the garden. One special feature of this school is the type of children selected for admission. The district is very poor and preference is given to debilitated children suffering from rickets. Children are selected from the Collyhurst Infant Welfare Centre.

The medical adviser pays a fortnightly visit. A wholetime nurse *masseuse* is employed, and good results are obtained in cases of rickets by the combination of massage and artificial sunlight treatment.

A midday meal and tea is provided at a charge to parents varying from 9d. to 1s. 6d. per week. These contributions are made up to a little more than 2s. per week from a Mothers' Free Fund and a charitable fund.

The children's activities find an outlet in singing, games, nature work, individual occupations, and free play. Any child who may be unable to walk is provided with a small trolley in which he can learn to move himself, so that his independence is not curtailed through his disability, which, in some cases, may be only temporary.

SHEFFIELD, DENBY STREET NURSERY SCHOOL

This school which was opened by the local education authority in 1928, affords accommodation for 170 children. The premises consist of two shelters each containing three classrooms which are fully "open-air" in type. Each classroom holds about 35 children. The classrooms open on to a verandah and can be closed by folding doors. There is ample playground space, partly laid out in grass and partly in asphalt. Other accommodation includes kitchen, larders, staff sitting rooms, lavatories and cloakrooms (with pipes screened by wire for drying clothes).

The staff consists of a Superintendent, three trained assistant teachers and three probationers, who are secondary school girls intending to enter the teaching profession. Other helpers include two students from the training college who attend for certain periods each week, and two elementary school girls in the last term of school life who attend for $2\frac{1}{2}$ days weekly in order to obtain some insight into the care and management of young children. One of the assistant school medical officers undertakes routine medical inspection, and special visits are paid, as required, either for new cases, or for children who need to be kept under observation. A school nurse pays daily visits. The children are passed under review for cleanliness or infectious disease, and simple minor ailments receive attention. The school clinics are available for the special inspection and treatment of children from this school. Weights are taken twice a month by the school nurse. Three meals are provided, breakfast, dinner and tea. A charge of 2s. per week is made in respect of the meals, but where parents are unable to pay the whole or part of this amount the charge may be remitted. The following medical observations illustrate the benefits derived from attendance at a nursery school of this type :—

- (i) All the children show a steady increase in height and weight.
- (ii) Children who have attended for a year have a well nourished appearance and intelligent bearing.
- (iii) Appetite improves ; difficult children become more normal.
- (iv) Cases of rickets or bone deformity, and minor ailments such as otorrhoea and impetigo respond quickly to treatment.
- (v) Comparatively few cases of infectious disease occur among the children.

The school, which is intended for children between two *plus* and five years of age, is organised in six groups. Experience has shown that the children of the age of two require special treatment, and it has, therefore, been found desirable and practicable to group the youngest children together.

The daily programme is planned with a view to satisfying the main needs of little children and providing opportunities for all round development. Special attention is devoted to the formation of good habits during the fixed periods for eating, sleeping, and personal hygiene. Free activities, for which a generous supply of suitable apparatus and toys is provided, are taken out of doors whenever possible.

The training affords opportunities for mental development and social intercourse, good use being made of sense training apparatus, educative toys and organised games. Due regard is also given to the importance of the development of language, and by means of picture books, talks, nursery rhymes and jingles, stories, dramatisation and the observation of life in the garden, sympathy and imagination are stimulated, interests are widened and the foundations are laid for the cultivation of clear, correct speech.

Considerable time is given to music, which consists of the singing of nursery rhymes and songs, musical games, a percussion band and simple rhythmic work. Other activities include drawing with various materials, clay modelling, paper tearing and constructive work with bricks and boxes.

(B).—NURSERY CLASSES IN INFANT SCHOOLS

NURSERY CLASSES IN COUNCIL SCHOOLS FOR INFANTS AT LEICESTER

The local education authority for Leicester has converted a considerable number of the classes for children below the age of five in council schools for infants into nursery classes. Nursery classes have now been organised in 18 infant schools in the area and there are now (Sept., 1933) in all 24 such classes. Each class contains, as a rule, about 30 children, and is in charge of a certificated teacher, who is assisted by a "nurse student." The classes are accommodated in adapted classrooms which in most cases were originally designed for 50 children. Structural alterations have been carried out to afford special facilities for social and physical training. Provision has, where possible, been made for smaller indoor water-closets, and for lavatories with hot and cold water, hand basins, sinks and draining boards. French windows have been constructed in many of the nursery classrooms to afford free egress to the playground, and new doorways have been made to give easy access to the offices. A hotplate, well out of reach of the children, has been placed in the special cloakroom provided. The rooms are decorated in cheerful colours, with suitable pictures and friezes. They are furnished with small folding tables and chairs, folding stretcher beds, long low cupboards, and low wall blackboards. Each child is provided with an overall, a pillow, a blanket, a sheet, a towel, a tooth brush, and a comb. Suitable equipment, including toys of various kinds, has been provided and a considerable part of the apparatus for training children to appreciate differences in size, shape, texture, temperature, etc., is made by the teachers themselves.

All the children have mid-morning lunch, consisting of hot milk, bread, biscuits, apples, etc. The charge for this is 1*d.* per day, and there is no difficulty about payment. In case the parents were unable to pay, the lunch would be provided free.

The following description of a typical nursery class at one of the infant schools in Leicester may be of interest. The school in question is situated in one of the poorest parts of Leicester. The building is modern, with internal sanitation and hot water, so that no structural alterations were required to ensure the necessary conditions for children of nursery school age. Adjacent to the school is a site purchased for a nursery school; owing to the national need for economy, the local education authority was unable to erect the school. However, this site was levelled and laid out for the use of the children in the nursery classes, with gardens and a large sand pit. Part of the ground was asphalted so as to provide a dry, firm surface for small tables, chairs and beds. When the weather is propitious, the two nursery classes live out of doors; the children carry out their own folding tables and chairs, beds, toys and apparatus, and bring them back into school at the end of the day.

Each of the two nursery classes has 30 children on the roll; in the lower class, 20 children are three years old and 10 are four; in the upper class, the children have all attained the age of four. Many children come from homes where three or four houses are built round a court and sanitation is very poor. In school they are trained in habits of personal cleanliness. Some of them never take their meals at a table at home and never see a table cloth. As the parents themselves express it, they "live one up and one down," and there is little chance of training in habits

of good living when the whole family works, cooks, eats and sleeps in two rooms. In spite of these home conditions no child in the nurseries ever thinks of coming to school without a handkerchief or a piece of rag as its equivalent; the overalls are carefully washed at home and the parents take a keen interest in all the school activities. When the new play-ground was first opened for the nurseries, many parents crowded round the gates to watch the children at play. The head mistress is always assured of the loyal co-operation of the parents in any schemes for the children's welfare.

NURSERY CLASSES IN INFANT SCHOOLS AT MANCHESTER

The 60 nursery classes established up to the present in infant schools in Manchester each contain, as a rule, 25 children. In large schools there may be two such classes. Children are usually admitted to the nursery classes at the age of three, but the head teacher has discretion to admit them at the age of two in special circumstances. Most of the children admitted spend two years, from the age of three to that of five, in the nursery class before entering the ordinary infant department. The head teachers of the infant schools and departments, and the teachers in charge of the nursery classes have full freedom to experiment and develop an appropriate technique of training and teaching. The broad aims of the nursery classes are to secure the proper physical, mental and social development of young children below the age of five. Most of these classes are in charge of a trained certificated teacher who works under the supervision of the head teacher of the infant school. The mistress in charge of the class has, as a rule, either received special training for nursery work, or has shown herself specially suited for dealing with young children. When the class contains more than 25 children, the teacher in charge is assisted by a student nurse (see Appendix V). The most suitable classroom in the older type of infant school building is usually allocated to the nursery class, and in one instance two convenient rooms adjacent to the school are hired for the purpose.

Since 1927 definite nursery accommodation has been included in nearly all new infant schools in such a manner as to form a compact section or a wing, apart from and yet in touch with the school as a whole.

This section includes extra large classrooms which open out on to a verandah, separate cloakroom, office and lavatory accommodation, an enclosed playground and in most cases a garden. In these new schools—19 in number—10 of the specially planned nursery wings or units are being used at present for nursery class work while the remaining 9, which have had to be taken over as a temporary measure to meet accommodation needs in new housing areas, will revert to their original purpose as soon as conditions will allow.

Light tables and chairs, cupboards, stretcher beds, and utensils for washing are provided in each nursery class. The personal equipment for the children includes plates, mugs, overalls, towels, tooth brushes, etc., and the educational material supplied comprises toys, picture books, and apparatus for sensory training. Children in the nursery class have hot milk with the lunch they bring from home in the middle of the morning. In some instances the lunch from home is discouraged and rusks and biscuits are provided instead. The sum paid for this light refreshment is 4d. or 5d. a week. Should the parents at any time be

unable to pay, the children receive the lunch and the cost is met out of a school fund collected by the staff. Cod liver oil in the morning and malt in the afternoon may be supplied, with the approval of the school medical officer, at a further charge of 2*d.* a week.

The children are medically examined after admission to the nursery classes, and are examined by the school doctor annually till they attain the age of five. The school nurse visits the class at least five times a year, and the school medical officer or the nurse is available, whenever required, to deal with special cases. Children who suffer from any physical defect receive appropriate treatment at the nearest clinic. The children spend as much time as possible in the open air.

The following description of a typical nursery class in Manchester may be of interest. This particular nursery class contains 25 children and forms part of an infant school affording accommodation for 260 children, but with an average attendance of only 110. The school is situated in one of the poorest areas of Manchester. The nursery room, which was originally a fair sized babies' room, is bright and cheerful, well heated and has sufficient floor space to accommodate 25-30 children. It lacks however some of the amenities provided in new infant schools; for instance, the nursery class has no special playground and garden. Part of the playground, however, has been reserved for the sole use of this class, and in fine weather the children spend a large part of the day out of doors.

Part of the main cloakroom in the school has been specially railed off for the use of children in the nursery class. The children's habits are closely supervised by the teacher, with a view to the formation of good habits. Special office accommodation is provided in the school buildings at a short distance from the nursery room. The equipment for washing consists of a specially constructed wash table fitted with six bowls and grooves to hold soap trays. The children's towels are hung on a frame fixed to the wall in one corner of the room. Special care has been exercised to make the arrangements for the mid-morning lunch, which affords such a valuable opportunity for habit-training, as attractive as possible. The small tables are covered with brightly coloured cloths and vases of flowers. Cups and plates are provided for each child. After the mid-morning lunch the children themselves clear the tables, wash the dishes and tidy the room. For individual occupations there is an ample choice of playthings, manufactured and home made, which are, for the most part, varied pieces of apparatus for sense training, e.g., colour sorting boxes, sound boxes, apparatus for training in touch, jig-saw puzzles, large and small bricks. For play out of doors, larger toys are provided, such as carts, wheel-barrows, hoops, dolls perambulators, and the like. The children sleep for about one hour every afternoon either in the classroom or, when climatic conditions are favourable, in the playground.

(C)—DESCRIPTIONS OF CLASSES FOR CHILDREN BELOW THE AGE OF FIVE BY THE HEAD TEACHERS OF SIX INFANT SCHOOLS OF DIFFERENT TYPES

THE CLASS FOR CHILDREN BETWEEN THE AGES OF THREE AND FOUR IN A COUNCIL SCHOOL FOR INFANTS IN A LARGE MIDLAND TOWN

There are two classes for children under the age of five in this school. The classes contain from 30 to 45 children at various periods of the

year. The baby class for children between the ages of three and four is self-contained and apart from the rest of the school. It is in charge of a certificated teacher with special qualifications. The school buildings are modern, and the room assigned to the baby class is larger than other classrooms in the school. It opens into a wide corridor and has a verandah. The offices are immediately opposite the classroom, and are approached by a covered way. The cloakroom and lavatory adjoin the nursery room, and there is easy access from them to the school hall, which is used by the children below the age of five for music, rhythmic exercises and games. The furniture in the nursery room is made of light tubular steel. Each small table is used by two children, and small single chairs are provided. The floor space in the centre of the room is kept clear of furniture and on it straw mats are laid for children who wish to use them for various activities. Ample apparatus, consisting of toys and other material, has been provided. Refreshment is provided in the middle of the morning at a charge of 3*d.* per week. This sum is provided out of a school fund where parents are unable to afford the charge. The children take their midday meal at home, and on their return to the school in the afternoon they sleep for at least three-quarters of an hour on low hammock beds made of canvas slipped over tubular steel frames. In fine weather they sleep on the terrace in front of the school. The programme of activities for the afternoon after the rest period comprises free play, the telling of stories, and music. The children receive careful training in the development of the senses, muscular co-ordination, speech, rhythmic, and social behaviour. The school doctor attends twice a week, and the school nurse is in attendance every day at a clinic attached to the school.

THE SECTION FOR CHILDREN AGED FOUR YEARS IN A COUNCIL SCHOOL FOR INFANTS IN A MIDLAND TOWN

This infant school has 228 scholars on the roll between the ages of four and seven. The section for children below the age of five is attached to the school, but has its separate routine. There are 26 children aged four years in the section in charge of an uncertificated teacher. No formal work in the 3 *R*'s is attempted. There is complete freedom of speech and movement, and there is a very happy atmosphere in the section. The furniture consists of small folding tables, each designed to accommodate six children, with separate chairs. There are toys for free play, and apparatus for sense-training. The teacher in charge sings and plays well herself, and gives daily musical training. There is a separate cloakroom and lavatory (with hot water) for children below the age of five and they learn to wash and dry their hands with their own towels which are supplied by the parents and washed at school. The children not only set out every morning their own lunch tables for milk and biscuits (which are paid for by the parents), but they help the whole school by setting out trays of cups for 120 other children above the age of five to have milk at "break" time; furthermore, with the help of three older scholars they wash up the plates and cups and replace them on the appropriate racks. The children under the age of five enjoy the "breaks" with the whole school, and take part in all inter-class dancing, singing, games and poetry competitions. Children who spend some time in this class, even if it be only one term, are settled and self-reliant. Moreover their parents are less fussy than those of

children admitted at the age of five. There are several wooden-framed canvas portable beds for special cases and for emergencies. The parents of these tiny children are allowed to fetch them every day from the classroom. Thus the teacher knows each mother, and there is the utmost goodwill between all concerned.

THE CLASSES FOR CHILDREN BELOW THE AGE OF FIVE IN A COUNCIL SCHOOL FOR INFANTS IN A LARGE INDUSTRIAL TOWN IN THE NORTH

This school, which has about 360 children on the books, is situated in a crowded quarter of a large industrial town. Many of the mothers work in clothing factories. For many years the school has had two classes for children between the ages of three and five. Each contains from 40 to 50 children and is in charge of a certificated teacher. From time to time certain nursery amenities have been provided for these classes, in so far as the premises and equipment would permit. The school contains nine classrooms, which open into a central hall.

A light meal of milk and biscuits is taken during the morning. A charge of 1*d.* a day is made for this, but no charge is made to those parents who cannot afford to pay.

Beds have recently been provided, but owing to the size of the classes, it is not possible to allow more than 60 per cent. of the children to use them. It is not possible to arrange for children to sleep out of doors, as the playground has to be used for drill and games by a large number of older infants. Jumping planks, and large toys of various kinds have been provided for outdoor use, and a sand pit and several flower beds have been laid out in the concreted playground.

THE CLASS FOR CHILDREN BELOW THE AGE OF FIVE IN A COUNCIL SCHOOL FOR INFANTS IN A TOWN ON THE SOUTH COAST

The babies' class at this school has been remodelled on the lines of a nursery class. The average number of pupils in the class for children below the age of five is 40, and the class is in charge of an uncertificated teacher, who is interested in young children and has had many years' experience in dealing with them. The nursery room is separated from the rest of the school building and is easily accessible to the playground. It is furnished with collapsible tables and small chairs. Low cupboards have been fixed to the walls for the purpose of storing sensory apparatus, toys, blankets, utensils, etc. The beds are stored in a curtained recess. The school is within easy distance of two public parks and a large common. Full advantage is taken of these open spaces, and whenever the weather is suitable the children are taken for a morning walk to one of the parks. In fine weather the whole day may be spent in the park or on the common. In less settled weather the children rest on stretcher beds in the classroom or in the playground. The children have milk with rusk or biscuit in school during the morning. Small basins, towels, water jugs, pails, etc., have been provided and special attention is paid to personal hygiene. Large toys and a sand tray are available for use in the playground. Each child is encouraged to do things for himself, and is given adequate time to this end. He is taught to replace articles that he has used, and to perform various services and acts of courtesy to other children.

THE GROUP FOR CHILDREN BELOW THE AGE OF FIVE IN A SMALL
NON-PROVIDED RURAL SCHOOL IN THE SOUTH OF ENGLAND

This school which was erected in 1844, consists of one large room divided by a movable wooden partition. The larger part of the room, measuring 30 feet by 18 feet, is used by children below the age of six. A small cloakroom containing a sink is attached to the school building, and an oil stove for heating milk has been provided by the managers. The children below the age of six are divided into two groups, one of which is a nursery group of some 15 children below the age of five. The portion of the room allocated to this nursery group has been furnished with small tables and chairs, together with a piano, a gramophone, a sand tray, dolls houses, boxes of bricks, and various other toys, many of which have been given by parents. Hot or cold milk is provided for all children who remain at school for dinner. Beds, blankets and pillows are provided for the younger children, and they sleep for at least an hour at the beginning of the afternoon session. The presence of the nursery group does not disturb the other group consisting of children between the ages of five and six, and little difficulty is experienced in taking a collective lesson with the two groups. A garden has been constructed in the small asphalt playground containing a bird table, and a bird bath. The chief aims of the training given to the nursery group are the development of self-expression, musical training, and the encouragement of an interest in nature by means of the school garden.

THE GROUP OF CHILDREN BELOW THE AGE OF FIVE IN A SMALL RURAL
COUNCIL SCHOOL FOR INFANTS IN ONE OF THE SOUTHERN
COUNTIES

Children below the age of five are admitted to this small council school for infants, which has about 45 pupils in all. The staff consists of a certificated head mistress who has taken a nursery course, and one uncertificated assistant. The baby class contains some children above the age of five, as well as those below that age. The school building consists of two rooms, and children above and below the age of five use the same offices, cloakroom and playground. There is a public field adjacent to the school premises in which the head teacher has constructed a sand pit and small rockery gardens. A shelter with a wooden floor and adjustable sides has been erected in the field. All the children spend much time in the open air. Small tables and chairs have been provided for the children in the baby class, together with toys of various sizes; much use is made of natural playthings, such as shells, fir cones, chestnuts, and the like.

Milk and biscuits are provided for the children during the morning session, and a midday dinner can be obtained at the school for a small payment. Children under the age of five, and those above that age who require it, sleep for an hour or more in the afternoon. The beds, which are devised by the head teacher, are made of hessian stretched on a wooden frame with four legs. Much of the equipment and other amenities provided in this school have been obtained through voluntary effort, and the parents take a very considerable interest in the school.



Princeville Nursery School, Bradford.
(By courtesy of the *Yorkshire Post*)



Princeville Nursery School,
Bradford.

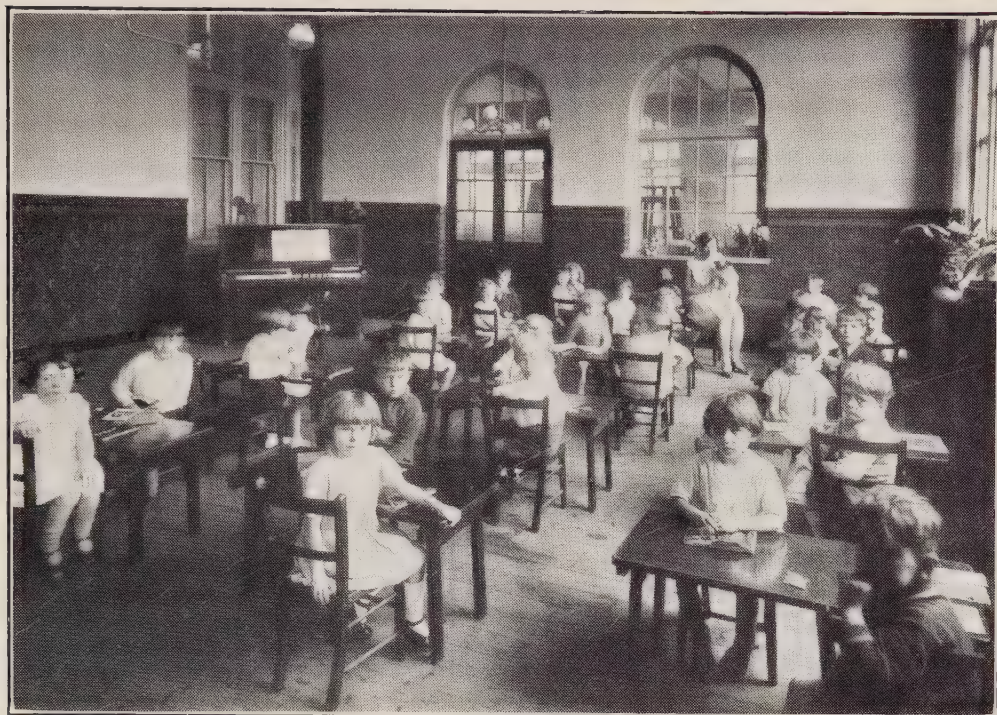
(By courtesy of the Yorkshire Post.)



Rachel McMillan Nursery School,
Deptford, London.



A Nursery class in an Infant School.



A class in an Infant School with equipment of modern type.



A class in an Infant School with equipment of an older type.

APPENDIX V

MEMORANDUM BY THE DIRECTOR OF EDUCATION FOR MANCHESTER ON THE STUDENT NURSE SCHEME FOR "HELPERS" IN NURSERY CLASSES IN MANCHESTER

The scheme offers to girls over fourteen years of age who wish eventually to become either hospital nurses or children's nursery nurses, a course of continued education up to the age of eighteen *plus*. They must be physically fit and are expected to do a year's work on probation but the course may terminate at any time subject to one month's notice on either side. Maintenance allowances are granted in accordance with the following scale :—

First Year,	normal age	14–15 years ..	£10 per annum.
Second Year,	normal age	15–16 years ..	£15 per annum.
Third Year,	normal age	16–17 years ..	£25 per annum.
Fourth Year,	normal age	17–18 years ..	£35 per annum.

Fifteen and sixteen are the usual ages of applicants drawn mainly from Central and Secondary Schools. Provision is made, however, for the appointment of girls of fourteen from Elementary Schools who wish to enter the nursing profession and who appear suitable. Of 62 Student Nurses appointed since the inauguration of the scheme 49 came from the former types of school whilst 13 only came from Elementary Schools. Helpers vary much in mental calibre, from the bright, capable, managing girl who is not so good intellectually, to the better educated girl who is anxious to make a career for herself. In most cases they are girls who have not been able to gain the School Certificate or Matriculation and so are not eligible for admission to Training Colleges or to enter other professions.

Each student nurse is attached to a Nursery class for part-time practical work with little children, where she receives a training as a "Helper", working with a responsible Nursery Teacher under the supervision of the Head Mistress. She spends the rest of her time attached to a centre for the continuation of her general education. At the present the students attend a Day Continuation School for half of each week. A special scheme has been drawn up to meet their particular needs and includes the following subjects :—

1. English—literature, children's literature, speech training.
2. Domestic Arithmetic.
3. Elementary Science, physiology and hygiene.
4. First Aid.
5. Civics.
6. History.
7. Geography.
8. Needlework and Crafts.

It is expected that student nurses when they attain the age of eighteen *plus* will either become children's nursery nurses or enter recognised hospitals for the full professional training.

During the seven years ended 24th June, 1933, forty-six helpers had left the schools on the termination of their appointments. Their after careers may be summarised as follows :—

1. *Left for various reasons :—*

(a) To enter business	2
(b) Illness of mother	3
(c) To take posts as children's nurse	3
(d) Emigration (to take up nursing in U.S.A.) ..	1
(e) To enter Training College (now a trained teacher) ..	1
(f) To stay at home (no other information available) ..	2
(g) To study at home for Matriculation with a view to entering a Training College	1
	<hr/>
	13
	<hr/>

2. *Left to enter Hospitals :—*

Pendlebury Children's Hospital	2
Swinton House Special School for Cripples	6
Park Hospital, Davyhulme	8
Salford Royal Hospital	7
St. Andrew's Hospital, Bow, London	1
Booth Hall, Manchester	1
St. Mary's Hospital, Manchester	2
Ancoats Hospital, Manchester—To train as a Masseuse	1
Hospital in Midlands	1
Stockport Royal Infirmary	1
Withington Hospital, Manchester	1
Rose Hill Convalescent Home (as Probationer Atten- dant to begin with)	1
Northern Hospital, Cheetham, Manchester	1
	<hr/>
	33
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APPENDIX VI

NOTES ON THE PROVISION FOR THE PRELIMINARY EDUCATION AND TRAINING OF CHILDREN BELOW THE AGE OF OBLIGATORY ATTENDANCE AT SCHOOL IN CERTAIN EUROPEAN COUNTRIES, AND IN THE UNITED STATES OF AMERICA

AUSTRIA—PROVISION FOR PRE-SCHOOL EDUCATION IN VIENNA

The age for compulsory attendance at school is 6.

Since 1919 the City Council of Vienna has greatly developed the provision of municipal kindergartens for children below the age of six. Whereas in 1913 there were only 25 such kindergartens, there are now 111. These municipal kindergartens are almost wholly financed by the municipality, which spent on them, in 1931, 7,014,000 schillings. The State does not make any contribution towards their upkeep. The only other source of income is small fees paid by the parents of children who are in a position to do so, viz. :—

50 groschen per week for attendance ;
66 " " " breakfast ;
3 schillings and 12 groschen for dinner.

If the parents are in poor circumstances these charges are either reduced or are wholly waived. The municipal *Jugendämter* for each of the several districts of Vienna allocate the children to the various schools and settle how much they have to pay. The kindergartens are open from 7 a.m. till 6 p.m., and in 96 out of the 111 kindergartens the children have breakfast and dinner. In 1931 the municipal kindergartens were attended by 10,470 children per day on an average ; 3,900 children had dinner in them and 2,700 had breakfast. Only 12 per cent. of these children paid the full amount. In all the municipal kindergartens the health and physical welfare of the children are carefully supervised by qualified doctors.

The City Council of Vienna has contributed towards the cost of erecting a kindergarten under the auspices of the Montessori Society called the Children's House (*Haus der Kinder*), and also makes an annual contribution towards its upkeep.

There are a large number of private kindergartens maintained and financed by Roman Catholic and Jewish organisations.⁽¹⁾

BELGIUM

The age for obligatory attendance at school is six years. There are, however, a large number of schools of the kindergarten type (*écoles gardiennes or jardins d'enfants*) for children between the ages of three and six. Such schools are established either by the local authorities, in which case the State pays one-third of the cost of the buildings, or by private effort. The vast majority of schools of this type established

⁽¹⁾ P. Frankowski and K. Gottlieb : *Die Kindergärten der Gemeinde Wien* (1927), passim, and data supplied to the Secretary of the Committee by the Oesterreichischer Verband für Wohnungsreform, Vienna.

by private effort are attached to girls' schools maintained by various Roman Catholic orders and congregations for women. As a matter of principle, the total cost of maintaining these schools falls on the organisers, i.e. local public authorities, or private groups. The State, however, in practice defrays a large part of the cost by making grants for salaries to all schools of this type that meet certain prescribed requirements in respect of qualifications of teaching staff, suitability of the buildings, etc. Furthermore, inasmuch as the local authorities defray the greater part of the cost of educational material given for the use of the children, the organisers of such schools are in fact only required to meet the cost of internal equipment. All these kindergarten schools are subject to State inspection.

In 1930 the total number of *écoles gardiennes* inspected by the State was 3,928, accommodating 248,936 children. Of these, 1,424 (with 76,940 pupils) were communal; 1,272 (with 99,103 pupils) were *Écoles adoptées* (i.e. schools maintained by the local education authority); 1,232 (with 72,893 pupils) were *écoles adoptables* (i.e. private schools not at present maintained by the local education authority).⁽¹⁾

CZECHOSLOVAKIA

The age for obligatory attendance at school is six. A considerable number of kindergartens and nursery schools are available in towns and larger villages for children whose parents desire to send them to school on a voluntary basis from the age of three onwards. Many of these kindergartens are maintained by the State, but some of those in the towns are supported by the local authorities or by voluntary private organisations. For instance, the Prague City Council, which established the first kindergarten in Bohemia in 1869, now maintains 101 kindergartens (with 8,591 children in attendance), staffed by 372 teachers and helpers.

These kindergartens do not constitute an integral part of the State system of primary education, though they are all inspected by the District Inspectors for Primary Schools. Provision is made for the training of kindergarten teachers in 14 special training colleges. The activities and courses of study in the kindergartens, which do not include the 3 R's, are largely based on the principles outlined in Comenius, *School of Infancy* (1633).

In the school year 1932-33 there were in Czechoslovakia 2,236 kindergartens and 535 other institutions, largely of the *crèche* type for young children. Of these, 919 kindergartens were maintained by the State, 939 kindergartens were maintained by city and urban councils, and there were also 13 practising kindergartens attached to training colleges. The remaining institutions of this type were maintained by voluntary organisations. During the school year 1932-33 there were in these kindergartens and other institutions of this type 108,524 children. The staff consisted of 3,317 trained kindergarten teachers, and 2,484 nurses, janitors, helpers, etc.⁽²⁾

⁽¹⁾ *Annuaire statistique de la Belgique et du Congo Belge*, 1931-1932, p. 77.

⁽²⁾ From a memorandum and other data sent to the Secretary of the Committee by Dr. E. Lippert, of the Ministry of Education, Prague.

FRANCE

The age of obligatory attendance at school is six, but considerable numbers of children are admitted to the preparatory sections of the primary schools at the age of five. Special provision is made for children below the age of six or five, either in separate schools called *écoles maternelles*,⁽¹⁾ or in *classes enfantines* attached to the primary schools. No fees are charged in these schools and classes. The cost of the buildings for *écoles maternelles* and *classes enfantines* is defrayed partly by the State, partly by the Department, and partly by the Commune. Since 1923 the State has assumed responsibility for the whole cost of the salaries of teachers in these schools and classes and for other expenses. There are a large number of private *écoles maternelles* which are mostly conducted by religious orders and congregations for women, and are wholly maintained by voluntary contributions. According to the latest available statistics (*Annuaire statistique, quarante-septième volume*—1931, Paris, 1932, pp. 30–31)—there were, in 1930, 3,673 *écoles maternelles*, of which 3,170 were State Schools, and 503 private schools. The total number of children on the registers of *écoles maternelles* in 1930 was 373,329. Of these, 343,088 were in State schools, and 30,241 in private schools. The total number of children in attendance at *écoles maternelles* in 1930 was 276,140, of whom 252,010 were in State schools, and 24,130 in private schools.⁽²⁾

GERMANY (*Deutsches Reich*) ⁽³⁾

The age of compulsory attendance at school is six in most of the States of the *Reich*. The kindergartens in the various States are still for the most part private institutions, generally denominational, which are assisted out of public funds. The larger towns, e.g. Berlin, Leipzig, Frankfurt, and the Free City of Hamburg, are gradually beginning to recognise the significance of this important branch of education as a whole. It would seem, however, that the municipal authorities have not yet made up their minds whether to regard it as a part of child welfare work and to place it under the child welfare committee, or to treat it as a preparation for the primary school and to place it under the education committee. The Saxon School Law of 1919 contains a clause providing for attendance at kindergartens in cases where parents for economic and moral reasons are unable to discharge their duty to educate their children, but owing to financial difficulties this provision has remained inoperative. In most towns the cost of providing and maintaining institutions of the kindergarten type has up to the present been defrayed by (a) voluntary contributions of various independent benevolent organisations; (b) small fees paid by most of the parents; (c) municipal grants in aid. For example, the City of Berlin paid in 1931 60 per cent. of the staffing expenses in the kindergartens. The amount of the contribution made by the municipalities towards the cost

⁽¹⁾ Before 1881 these schools were called *salles d'asile*. See the article on L'École Maternelle Française by Madame Petit-Dutaillis in *Compte Rendu du Congrès International De L'Enfance*, Paris (1931), pp. 229–235.

⁽²⁾ From memoranda, etc., sent to the Secretary to the Committee by Madame A. Coirault, Inspectrice-Générale de l'Instruction Publique, Paris.

⁽³⁾ The data relating to Kindergartens, etc., in the States of the *Reich* were collected in 1932.

varies greatly. In the city of Hamburg the State (i.e. the Senate of the Free City) defrays the whole cost of maintenance. In most towns the municipality pays a certain percentage of the cost, as in the case of Berlin quoted above. In some cities a municipal contribution is made each year on a formal application from the bodies or persons conducting the kindergartens. On the whole, it may be said that there is a tendency for the provision of pre-school education and training to be regarded more and more in the towns as a legitimate charge on municipal funds, but not on State funds (except in the Free Cities of Hamburg, Bremen and Lübeck).

According to the official statistics for 1930, there were 7,282 kindergartens in the *Reich*, affording accommodation for 421,955 children. Of these, 1,865, providing accommodation for 101,485 children, were public (i.e. municipal) institutions; the remaining 5,417 kindergartens, accommodating 320,470 children, were maintained by voluntary effort. In the City of Berlin there were in December, 1931, 277 kindergartens, of which 50 were public institutions. At Munich in 1931 there were 49 municipal kindergartens with 86 divisions (sections). In the Free City of Hamburg there were, in 1930, 28 day rooms (*Tagesheime*) and 14 kindergartens.

NETHERLANDS (HOLLAND)

The administration of education in the Netherlands is very decentralised, and is almost wholly vested in the local school boards, the town councils, and private societies, denominational and philanthropic. A large proportion of the existing schools are denominational. The central Ministry of Education merely administers grants and pays for the schools, whether public or sectarian, provided that they satisfy certain requirements in respect of staffing, curriculum and buildings. If the local school board or town council does not regard the State grant as sufficient, and desires to improve the condition of its schools, it is free to do so, but must itself bear the further cost. School attendance was made compulsory in 1900, and since then every Dutch child must attend an elementary school for seven years, or up to the age of thirteen. Until recently the State paid little attention to kindergartens for children of pre-school age, which were popularly known as minding schools (*Bewaarscholen*, from *bewaren*, meaning to keep, to store). The teachers in these schools were not trained and were badly paid. During the last 50 years, conditions have greatly improved; training colleges for kindergarten teachers have been opened, and influential social organisations have stressed the importance of the pre-school stage. As a result, modern kindergartens have been founded all over the Netherlands either by the municipal councils or by private associations, and the salaries of the teachers have been raised. The kindergartens are inspected by five women inspectors appointed by the State. It was proposed some years ago in Parliament to organise a system of kindergartens throughout the country for children under the age of obligatory attendance (i.e. seven) but up to the present no measure on these lines has been passed, and in existing economic conditions it seems highly improbable that anything will be done by the State in the near future.

The cost of maintaining kindergartens provided by the municipalities (*openbare scholen*) is wholly met by the municipal councils. Kindergartens provided by denominational and philanthropic societies (*bijzondere scholen*) are financed by the societies in question. There

were in 1930, 288 municipal kindergartens (with 39,043 pupils), and 1,562 kindergartens maintained by Protestant, Roman Catholic, and other societies, with 139,644 pupils.⁽¹⁾

SWEDEN

Children are normally required to begin attending the primary school in the autumn term of the calendar year in which they attain their seventh birthday. The age for compulsory attendance thus ranges from six years and eight months to seven years and eight months in the great majority of school districts. In a few school districts the age for compulsory attendance at school may vary from six years to six years and eleven months. There is no public educational provision for children under the age of obligatory attendance. Kindergarten classes for children of the age of five and upwards exist in a certain number of private schools. Such private schools form an integral part of the public system of education, but receive no grant from the State in respect of such kindergarten classes.

SWITZERLAND

In 13 Cantons compulsory attendance at school begins at the age of six; in 12 Cantons it begins at the age of seven.

In all the Cantons, except two, attendance at infant schools up to the age of six or seven, according to the Canton, is wholly voluntary. The Canton of Neuchatel makes attendance compulsory for all children who attain the age of six during the school year. The Canton of Geneva has a lower division of the infant school for children between the ages of three and six, and another division for children between the ages of six and seven, at which attendance is obligatory. In these two Cantons the kindergarten, which teaches the 3 R's, forms part of the cantonal school organisation. The Cantons of Zürich, Basel City, Tessino and Aargau, have three-year infant schools organised and aided by the Canton. In the remaining Cantons, infant schools are the concern of the *Communes*, or of private organisations which are largely denominational. Children are usually admitted to these infant schools at the age of three.

THE UNITED STATES OF AMERICA

The age for compulsory attendance at school is six years in two States out of the 48 States of the Union; seven years in 29 States; eight years in 17 States; and nine years in one State. Despite these variations in State requirements, there is more uniformity in the ordinary requirements in respect of school age in urban areas, where the normal age of entrance to the public (common) school is usually six years.

Provision for Pre-School Education. Excluding the day nurseries, which fall outside our purview, the two main types of pre-school institution are:—(i) the kindergartens and kindergarten classes; and (ii) the nursery schools.

⁽¹⁾ *Central Bureau voor de Statistiek. Afdeeling Onderwijsstatistiek Mededeeling No. 5* (27 Februari, 1932); and other data sent to the Secretary to the Consultative Committee by Heer H. W. Methorst, Director-General of Statistics, at the Hague, and Heer P. A. Diels, Editor of *Paedagogische Studien*, Amsterdam.

Kindergartens and kindergarten classes. Kindergartens, which were originally based on ideas deriving from Comenius, Rousseau and Froebel, were first established in the United States about 1855, as private institutions, but they are now for the most part under public control, being organised as kindergarten classes attached to the public (common) schools in the larger towns. St. Louis was the first great city to establish a system of kindergarten classes attached to the public (common) schools and financed by the municipality, and a large number of cities, mostly places with over 100,000 inhabitants, have adopted similar arrangements. It is exceedingly difficult to obtain detailed information, but it is broadly true to say that in most large cities and in a few States at least one year of kindergarten education for children between the ages of four and six is regularly provided as part of the public school system and paid for out of municipal funds. There were in 1930, 723,443 children in public kindergartens. In 1928 there were 54,456 children in private kindergartens.⁽¹⁾

Nursery school kindergartens. Such nursery school kindergartens as exist, are mostly attached to academic institutions or teachers' colleges, and are maintained by tuition fees, private funds, universities, or teachers' colleges.

Nursery schools. Nursery schools, on the model of the McMillan School at Deptford, were established in considerable numbers in the United States after the close of the Great War, not as part of the public provision for education, but rather as institutions for educational research regarding the general development, habits, and needs of young children. There were 262 nursery schools in 1930 ;⁽²⁾ many of them are attached to teachers' colleges or to the educational departments of universities, or are organised as private research institutions, like the Merrill-Palmer School at Detroit. They are attended for the most part by the children of parents in fairly comfortable circumstances. The children of poor parents requiring assistance are as a rule accommodated in day nurseries. These nursery schools are supported by tuition fees, private funds, universities or teachers' colleges, subscriptions, public charitable funds, and educational foundations.

It is broadly true that in the United States at the present time the provision of educational facilities for children under the age of obligatory attendance at school is not generally regarded as a charge on State funds (though in a few States kindergarten classes are provided as part of the public school system). On the other hand, in the large cities, the provision of kindergarten classes is coming more and more to be regarded as a legitimate charge on municipal funds.

⁽¹⁾ *Biennial Survey of Education in the United States, 1928-1930. Bulletin, 1931, No. 20* of United States Department of the Interior, Office of Education, pp. 4-5.

⁽²⁾ *Nursery Schools*, by Mary Dabney Davis. *Bulletin, 1932 ; No. 9* of United States Department of the Interior Office of Education p. 1.

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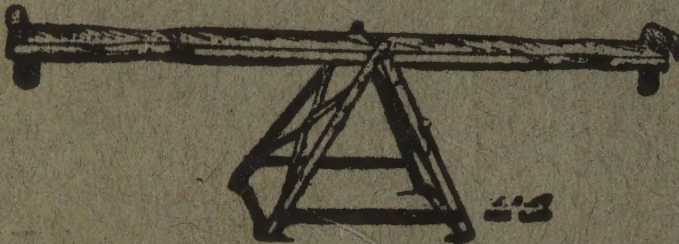
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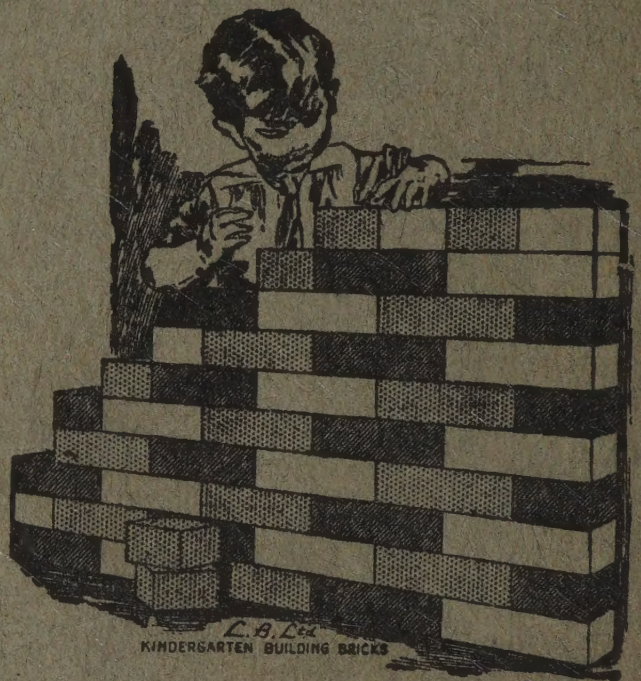
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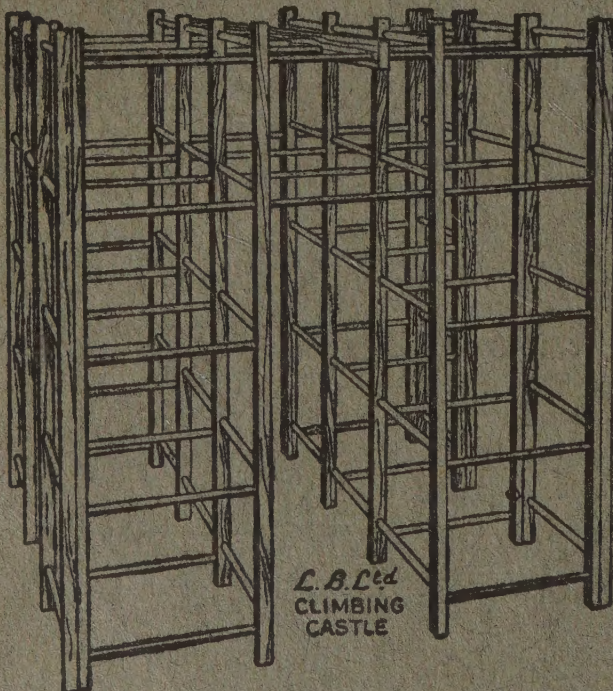
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